REPORT RESUMES

ED 010 796 24

RELATIONSHIP OF SELF-CONCEPT TO ACHIEVEMENT IN HIGH SCHOOL,
FINAL REPORT. SELF-CONCEPT AND SCHOOL ACHIEVEMENT, III.
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REPORT NUMBER CRP-2831 PUB DATE FEB 67
MICHIGAN ST. UNIV., EAST LANSING,COLL. OF EDUC.
REPORT NUMBER BR-5-0317
REPORT NUMBER ERS-36
EDRS PRICE MF-$0.54 HC-$14.72 368P.

DESCRIPTORS- *SELF CONCEPT, *ACADEMIC ACHIEVEMENT, *HIGH SCHOOL STUDENTS, *BEHAVIOR THEORIES, *INTERACTION PROCESS ANALYSIS, RESEARCH PROJECTS, ACADEMIC ABILITY, EAST LANSING

THIS RESEARCH ON THE RELATIONSHIP OF SELF-CONCEPT OF ABILITY TO ACADEMIC ACHIEVEMENT IN HIGH SCHOOL WAS BASED ON THE THEORETICAL FRAMEWORK COMMONLY IDENTIFIED AS THE SYMBOLIC INTERACTIONAL THEORY OF BEHAVIOR. THE BASIC POSTULATE WAS THAT ACADEMIC BEHAVIOR OR SCHOOL LEARNING IS LIMITED BY THE STUDENT'S SELF-CONCEPT OF HIS ABILITY, AND THAT SELF-CONCEPT RESULTS FROM THE EXPECTATIONS AND EVALUATIONS HELD BY SIGNIFICANT OTHERS AS PERCEIVED BY THE STUDENT. THE RESEARCH PROGRAM WAS DESIGNED TO TEST HYPOTHESES DERIVED FROM THIS THEORETICAL FRAMEWORK. THIS REPORT REPRESENTS THE THIRD IN A SERIES OF REPORTS FROM THE SELF-CONCEPT OF ACADEMIC ABILITY RESEARCH PROGRAM AT MICHIGAN STATE UNIVERSITY. THE FIRST TWO REPORTS ARE ED 002 946 AND ED 003 294. PART 1 OF THIS VOLUME DEALT WITH THE TESTING OF SEVERAL HYPOTHESES BASIC TO THE SYMBOLIC INTERACTIONAL THEORY OF SCHOOL ACHIEVEMENT. PART 2 CONTAINED SUMMARIES OF 11 STUDIES BASED ON THE LARGER PROJECT OR CLOSELY RELATED TO IT. (GD)

ED010796

1AA

Educational Research Series, Number 36 (5-0317)
Cooperative Research Project, Number 2831
February 1967

Self-Concept of Ability and School Achievement, III

Third Report on the Continuing Study of the Relationships of Self-Concept and Achievement

ER 36

Educational Publication Services
College of Education
Michigan State University
East Lansing, Michigan

SELF-CONCEPT OF ABILITY AND SCHOOL ACHIEVEMENT, III

Third Report on the Study of the
Relationships of Self-Concept and Achievement

607

and

Final Report on Cooperative Research Project No. 2831

entitled

Relationship of Self-Concept to Achievement in High School

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U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
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The research reported herein was supported by the Cooperative Research Program of the Office of Education, United States Department of Health, Education, and Welfare

Human Learning Research Institute
Michigan State University
East Lansing, Michigan

February 1967

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PREFACE

This is the third in a series of reports from the self-concept of academic ability research program at Michigan State University. Support for the research has been provided jointly by the Cooperative Research Program of the U. S. Office of Education and Michigan State University. The former support is provided in Projects 845, 1636 and 2831. Reports of the first and second projects were previously produced under the title, "Self-Concept of Ability and School Achievement" and "Self-Concept of Ability and School Achievement II." The three projects represent continuous phases of a six year study of the relation of self-concept of academic ability to school achievement among students in one school class while in the 7th through the 12th grades. The first report covered the preliminary phases of the study and a cross-sectional study of the 7th grade. The second included the results of three experiments designed to enhance self-concept of ability and the longitudinal analysis of stability and change in the major variables from the 7th to 10th grade.

This research is based on the theoretical framework commonly identified as the symbolic interactional theory of behavior. The basic postulate is that academic behavior or school learning is limited by the student's self-concept of his ability in these areas. We further postulate that self-concept results from the expectations and evaluation held by significant others as perceived by the student. The research program was designed to test hypotheses derived from this theoretical framework.

The primary focus of Part I of this volume is the testing of several hypotheses basic to a symbolic interactionist theory of school achievement. The longitudinal data provided an unusual opportunity to test the relation of the major variables over time.

Part II of this volume contains summaries of eleven studies based on the larger project or closely related to it. Each of these developed from the basic theory and contribute to its illumination. These studies were carried out by students who were affiliated with the project in various ways. Several were dissertations.

The authors wish it were possible to give full credit to all who assisted in this research. The large number involved and the commitment not to identify the schools or individual students makes this impossible. We wish to express publicly our thanks to the hundreds of students who have made this research possible by responding to our questions each year during their junior and senior high school careers. The cooperation of the school administration, the data processing staff, and teachers in the several schools has been wholehearted and generous. We appreciate the many inconveniences which we have caused, and thank them for making this research possible.

We cannot identify all the Michigan State University staff and students who have assisted this research program in many ways because there were so many. No project of this magnitude, extending over several years, could be carried out without the help of large numbers of people performing numerous varied tasks. We extend our thanks to all.

Several staff members made major contributions in earlier phases of the project and were identified as authors of a previous report. They are Drs. Jean LePere, Don Hamachek, Ann Paterson and Shailer Thomas. This third phase of the research would not have been possible without their prior contributions.

The day-to-day and month-to-month performance of data gathering, processing, and analysis has been facilitated by the dedicated work of Mrs. Natalie Sproull and Corey Krugh. Our thanks does not give adequate credit for their continued interest, creative suggestions and untiring efforts to keep the project running smoothly.

Although not employed on the project, Dr. Richard Towne contributed much to both the ideas and routine tasks essential to a research project.

Much of the arduous work of processing data and typing has been done by Helen Klein, Lynn Tischler, Margaret Waddell, Ethel Williams and Merrilyn Vaughn. We gratefully express our appreciation for their dedicated service to this research project.

Roslyn Blum and Marilyn Hayes have assisted in editing various versions of the authors' prose. Unfortunately only the authors can appreciate fully the value of such assistance.

The dedicated efforts of Mrs. Josephine Wharton, the senior author's secretary throughout the period of this research, has facilitated the work in innumerable ways. It is a pleasure to express our thanks to her and all who have assisted in this project over the years.

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PART I

RELATION OF SELF-CONCEPT OF ABILITY TO ACHIEVEMENT IN HIGH SCHOOL

CHAPTER I

THEORY AND OBJECTIVES

During the several decades that behavioral scientists and educators have investigated the education process, the primary focus has been on the individual learner. Variations in learning have been explained by such psychological and physiological concepts as intelligence, aspiration level, aptitudes, sensory impairment, and similar variables. Some attention has also been given to identifying the stimulus properties of various types of teaching method and school atmosphere. In neither type of research, however, has there been any major attention given to the processes of interaction between the learner and his social environment.

Educational researchers, particularly those in comparative education, have recognized the influence of gross cultural differences in learning for many years. Thus, children in India and the United States learn to behave differently because of the differences in social-cultural environment. In recent years the influence of sub-cultural differences, such as social class, on the behavior learned in a given society has also been recognized.

The research in this context has been primarily focused on identifying the differences among the children of different social strata or ethnic groups. Although gross differences in children of different strata are well established, it is also clear that many lower-class or minority ethnic group children learn the school curriculum quite as well as the dominate middle-class children. The processes whereby differences in social-cultural environments affect the learning of students has, however, not been extensively investigated.

Educators have become increasingly aware that "cultural differences" among the disadvantaged may be as great a source of poor academic performance as intelligence or teaching method. Prominent psychologists have also challenged the utility of current psychological theories of learning for analyzing the school teaching-learning process.[1] These and other developments have caused many to question the common belief that the most important sources of variance in school performance is human ability. Consequently, American educational practices based on this belief have been criticized.

The need for highly educated personnel and the demand that the disadvantaged be provided high quality education require a new concept of school learning. The common conception of fixed intelligence does not provide an adequate basis for educating students identified as slow learners.

There has been much evidence which raises serious questions about the concept of fixed intelligence as commonly assessed, but apparently that evidence has been generally rejected because it did not fit beliefs about organically fixed and inherited abilities and the current testing, classifying, and tracking practices in education.[2] Although such fixed learning ability may exist we have no way of identifying the limits of most students' learning potential at this time. The individual difference in learning among students may result from many social and psychological factors. This research postulates that much of the variation in learning among students results from differences in the interaction with others in the social-cultural environment.[3]

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[1] See Ernest R. Hilgard, "A Perspective on the Relationship Between Learning Theory and Educational Practices," in Theories of Learning and Instruction, Ernest R. Hilgard (ed.). (Chicago: The National Society for The Study of Education, 1964).

Social-psychological propositions have therefore been formulated, hypotheses and exploratory questions derived, and a series of studies conducted to analyze and explain variations in school performance among students. These propositions stress the interaction between the learner and his social environment as perceived by him.

Overview of Objectives

Each of the studies presented in this report share a common theoretical objective, namely, to determine the antecedents and consequences of self-concept of academic ability among adolescents, and to determine the theoretical and empirical utility of a set of basic propositions in a social psychology of learning.[4]

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[2] J. McV. Hunt, Intelligence and Experience, New York: Harcourt, Brace & World, 1962.

[3] This model for learning should not be interpreted to mean that organic differences, be they the result of genetic, or physical impairment, play no role in academic performance. A basic thesis of this study, which will be developed in greater detail, is that within the limits set by the physiological and neurological structures of the organism, variations in behavior are influenced by variations in socialization. To the extent that we develop principles of socialization, we may better understand individual learning.

The major portion of this report is addressed to the development of self-concept of academic ability and its impact on academic performance among the same students from the seventh through twelfth grade.

The long-range effects of three experimental treatments designed to enhance self-concept of academic ability and through this, school achievement are examined also.[5]

In Part II several related studies made possible by the primary investigation are summarized. These involve different aspects of behavior and include studies of dropouts, college aspirations, deaf children, educable mentally retarded children, reliability and validity of instruments, and the academic norms students perceive in their relationships with parents and friends.

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[4] Wilbur B. Brookover, "A Social Psychological Conception of Classroom Learning," School and Society, LXXXVII (1959), 84-87.

[5] Both the longitudinal investigation and the follow-up of experimental subjects, continues research reported in: Wilbur B. Brookover, Ann Paterson, and Shailer Thomas, "Self-Concept of Ability and School Achievement," U. S. Office of Education Cooperative Research Project No. 845, (East Lansing: Office of Research and Publications, Michigan State University, 1962); and Wilbur B. Brookover, Jean M. LePere, Don E. Hamachek, Shailer Thomas, and Edsel L. Erickson, "Self-Concept of Ability and School Achievement, II," U. S. Office of Education Cooperative Research Project No. 1636, (East Lansing: Bureau of Educational Research Services, Michigan State University, 1965).

Theoretical Background

Theoretical perspectives most pertinent to this study appear in the literature under the rubrics of role analysis[6], reference group theory[7], and symbolic interactionism.[8] These works stress the influence of others in role decisions. From this point of view, students are influenced in their behavior by the expectations and approval of others. We contend, however, in the tradition of W. I. Thomas, John Dewey, George Herbert Mead, Alfred N. Whitehead, and others, that it is not the actual behavior of others which directly determines an individual's actions. Rather, it is the individual's interpretation of the expectations and acts of others which most influences his behavior. The individual's definition of self-other relationships is therefore the focus of this study.

We perceive this as a contribution to the development of a social-psychological theory of learning. Such a theory is not however a contradiction of psychological or sociological theory.

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[6] Robert K. Merton, Social Theory and Social Structure, (Glencoe, Ill: The Free Press, 1957); Neal Gross, Ward Mason and Alexander W. McEachern, Explorations in Role Analysis: Studies in the School Superintendency Role (New York: John Wiley and Sons, Inc., 1958).

[7] Herbert Hyman, "The Psychology of Status," Archives of Psychology, No. 269 (1942).

[8] See John W. Kinch, "A Formalized Theory of the Self-Concept," The American Journal of Sociology, LXVIII (1963), 481-486; Brookover, (1959), op. cit.; Arnold M. Rose, "A Systematic Summary of Symbolic Interaction Theory," Human Behavior and Social Processes (Boston: Houghton-Mifflin, 1962), pp. 3-19, and Wilbur B. Brookover and David Gottlieb, Sociology of Education, (New York: American Book Company, 1964) Chapter 16.

Rather, it supplements and bridges the contributions of both to further an understanding of school learning.

Knowledge of the principles and processes of self-other interaction will, we believe, contribute to an elaboration of such psychological theories and constructs as reinforcement, stimulus deprivation, and phenomenological self. Such knowledge should also help to explain how the sociological variables of social class and social-cultural norms affect learning. This theoretical orientation merely shifts the research emphasis to the self-other context in which psychological and sociological variables interact.

Some theoretical traditions in psychology appear to be more consistant with the social behaviorism presented here than others. Reinforcement theories, particularly those stressing "voluntary" behaviors, and phenomenological theories[9] which stress the importance of the individual's perception in the learning process have much in common with this approach to human behavior.

The primary source of the frame of reference within which this research has developed is the symbolic-interactionist "theory" of George Herbert Mead.[10] Although our usage has been influenced by many sources, the social behaviorism that Mead developed in the logical positivism tradition has been most relevant. Our theoretical formulations, however, vary somewhat from Mead's original usage and from others who have contributed to this field. We have therefore provided an exposition of the theory and methods by which we have tested it in a subsequent section of this report.

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[9] Perhaps the most compatible of the phenomenological theories is presented by Arthur W. Combs and Donald Snygg, Individual Behavior (2nd Edition, New York: Harpers, 1959); Much of Piaget's work emphasizing the impact of socialization outside of formal schooling is in accord with our position. See J. Piaget "The Development of Time Concepts In the Child," in P. H. Hock and J. Zubin (eds.) Psychopathology of Childhood (New York: Grune and Stratton, 1955).

[10] George H. Mead, Mind, Self and Society, (Chicago: University of Chicago Press, 1934). The authors have also been strongly influenced by the theoretical work of the following scholars: John W. Kinch, op. cit.; Harry S. Sullivan, Conceptions of Modern Psy-

The basic terms of our studies are used in other theoretical orientations with somewhat different meanings. The concept self particularily has been used in several different ways depending upon the differing theories of human behavior from which they were derived. In view of this we will define our usage as accurately as we can. The basic propositions, objectives, and the hypotheses tested in this research will follow.

Self-Concept: A Behavioral Process

Self-concept of academic ability as used in this research should not be confused with other definitions of self-concept or self. Mead's behavioristic use of "self-reflective," "self-attitude," "self-consciousness," "self-communication," and "self-as an object" are most pertinent to our usage.[11] It has not been our intention to measure or infer a self as a subjective phenomenon as

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chiatry (Washington, D. C.: William Alanson White Psychiatric Foundation, 1947); Ralph Linton, The Study of Man (New York: Appleton-Century-Crofts, Inc., 1936); Neal Gross, Ward S. Mason, and Alexander W. McEachern, *op. cit.*, and Arthur Combs and Donald Snygg, *op. cit.*

[11] Mead, *op. cit.*

in Mead's use of the "self as I."[12] Self-concept is defined as symbolic behavior in which the individual articulates a program of action for himself as an object in relation to others.

Self-concept of academic ability refers to behavior in which one indicates to himself (publicly or privately) his ability to achieve in academic tasks as compared with others engaged in the same task. We perceive of self-concept of academic ability as only one of many concepts of self. Other concepts of self refer to other areas of behavior which may vary from that involving school performance.

A person may also hold more than one self-concept of academic ability. These may vary with the person or persons to whom he is referring himself. A blind child may hold a high self-concept of academic ability when he refers himself to his blind classmates and a low self-concept of academic ability when he refers himself to sighted students. Although self-concepts of academic ability may vary from one situation to another and from one time to another individuals tend to be relatively stable in their self-concept responses. The observation that individuals tend to define themselves in the same way under similar stimulus situations should not be interpreted, however, to mean that self-concept of ability is a trait, or entity, or that it has an existence apart from behavior.

Self-concept of academic ability does not refer to some underlying mental structure such as a phenomenological self, as defined by such theorists as Jersild[13] or Maslow.[14] Rather it refers to symbolic behavior, and as such, to an empirical event. Thus when individuals publicly define their academic ability, we may observe what we refer to as self-concept of academic ability behavior.

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[12] Ibid.

Since the process of definition from our theoretical viewpoint is a language process, defining oneself is also public in that it employs a shared symbolic system. Self-concept of academic ability is the individual's assessment of his ability as expressed in the language of the community. We do not refer to some unidentified unit which may be presumed to be more "real" than the language used by the person in assessing his ability. The definitions of self-concepts of ability are determined by the public standard of the language shared by the community involved.

Language behaviors which refer to one's ability in academic tasks are therefore classified as self-concept of academic ability behavior. Conversely, statements which do not publicly and literally refer to one's ability to carry out academic tasks with reference to others, such as statements of one's worthiness, desire, and aspiration are excluded.

We should also note that a person may think he is capable of carrying out a task, but prefer to avoid that task. A person may prefer not to achieve a mathematical skill even though he thinks he is quite capable in mathematics. Similarly, another person may prefer to achieve in mathematics but not define himself as capable. Therefore, preference or desire statements are also excluded from our definition. Observations of self-concept of academic ability are based only on those public statements a person makes about his academic ability. Inferences about self-concept of academic ability behavior based on some other behavior, such as responses to a projective test, or questions about how the student likes school, or definitions of other self-concept behaviors are not implied in this research.

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[13] Arthur Jersild, In Search of Self (New York: Bureau of Publications, Teachers College, Columbia University, 1952).

[14] A. H. Maslow, "Self-Actualizing People: A Study of Psychological Health," Personality, Symposium No. 1 (1950), 11-34.

The scales which we have developed are designed to elicit behaviors which may be observed and classified according to ranked categories of self-concept of academic ability. Our chief concern is to determine if these behaviors are related to other behaviors in and out of school as indicated in the research hypotheses.

The associations we observe between self-concept of academic ability and other school behaviors are not intended as evidence of the impact of some "real" selves or of other conceptions of some internal phenomenological states of existence. We do not propose that we can infer from our observations any phenomenological existence. When we use "self behaviors" it is not intended to refer to anything other than such behavior.

The above considerations are not meant to provide us an escape from important theoretical and methodological issues faced by all scientists observing and interpreting events. Rather we only wish to make clear what we observe, infer, and assume. This is necessary because of the existence of differing theories and research studies involving self, self-concept, and self-image. These terms have recently become almost magic in intellectual discussions of the educational process. We hope, therefore, to avoid misunderstanding of what our research is about.

Self-Concept: An Intervening Variable and a Threshold Variable

As suggested earlier our use of self-concept is largely derived from the symbolic interactionist theory of human behavior; within this frame of reference self-concept is an intervening variable. This is used as . . . "any intervening construct with a maximum amount of operational validity, or direct empirical reference."[15]

> "In this context, the self is the intervening variable between the normative patterns of the social group or the role expectations held by significant others, on one hand, and the learning of the individual, on the other. We hypothesize that, for the expectations of others to be functional in a particular individual's behavior, they must be internalized and become part of the person's conception of himself. Although we recognize the relevance of self in all aspects of human behavior, our interest at this point is in a particular aspect of self as it functions in the school learning situation. We postulate that the child acquires, by taking the role of the other, a perception of his own ability as a learner of the various types of skills and subjects which constitute the school curriculum. If the child perceives that he is unable to learn mathematics or some other area of behavior, this self-concept of his ability becomes the functionally limiting factor of his school achievement. 'Functional

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[15] Melvin H. Marx, "Intervening Variable or Hypothetical Construct," The Psychological Review, LVIII (1951), 236.

> limit' is the term used to emphasize that we are speaking not of genetic organic limits on learning but rather of those perceptions of what is appropriate, desirable, and possible for the individual to learn. We postulate the latter as the limits that actually operate, within broader organic limits, in determining the nature or extent of the particular behavior learned."[16]

Implicit in the proposition that self-concept of academic ability is an intervening variable is the further assumption that a student's perceptions of others only indirectly influences his academic achievement. Perceived evaluations of others are related to achievement through their impact on self-concept.

Another implicit assumption is that a change in a student's perception of the evaluations of his academic ability made by others is a sufficient condition to elicit a change in his self-concept of academic ability. The relationship of self-concept of academic ability to achievement, on the other hand, is considered to be necessary but not a sufficient condition. Self-concept of ability is a "threshold concept."[17] Within the academic limits imposed on a student by his self-concept of academic ability, language development and other factors such as self-identities which specify appropriate role behavior are assumed to determine the level of academic accomplishment attempted. Self-concept of ability functions to limit the learnings attempted; it does not account for variations in achievement within those limits. Therefore, correlational procedures which test linear relationships are not completely satisfactory for describing the relationships among these variables even though there are conditions under which self-concept of academic ability will exhibit high linear correlational associations with achievement.[18]

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[16] Brookover and Gottlieb, op. cit., p. 469.

[17] David E. Lavin, The Prediction of Academic Performance (New York: Russell Sage Foundation, 1965) Chapter III.

Self-concept of ability will have its highest linear levels of association with achievement when students attempt to achieve the highest grades of which they think they are capable. To the extent that a society is increasingly characterized by students who have learned that they all ought to acquire high levels of academic skill, but that only a few of them are so capable, an increasing association may be observed between academic achievement and self-concept of academic ability.

The assumption is that the more that a society is characterized by this normative dilemma, the more that students are being impeded in their academic achievement. Therefore, the magnitude to which self-concept of academic ability is predictive of academic achievement suggests both the extent to which students are impeded in their academic performance and the extent to which their social systems reflect a disparity between academic achievement norms and perceived evaluations of academic ability.

Student Role-Relationships

As previously stated, neither a student's self-concept of academic ability nor the perceptions he has of others' evaluations of his abilities are to be considered prescriptive or normative.[19] A student may learn from his parents, or others, that he is capable of achieving "A's" in mathematics while at the same time learning from them that achieving "A's" in mathematics is not important and that his achievement in mathematics will have little effect upon the social relationships he presently values or aspires to attain.

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[18] To conceptualize self-concept of ability as a threshold variable in its relationship to academic achievement while having a linear relationship with perceived evaluations presents methodological problems not commonly treated. The usual correlational procedures are inadequate.

A further assumption is that the student must expect of himself, or perceive that others expect, high achievement by him in mathematics if he is to attempt high achievement. Because others may influence a student's behavior in this way, we are interested in determining those categories of others who provide the students with their academic self-conceptions. Such person or groups we refer to as significant others.

Of particular interest to us are the perceived evaluations and expectations of parents, friends and teachers.[20] The theoretical rationale for employing student-parent, student-friend, and student-teacher constructs of relationship is drawn from the early work of Ralph Linton and the recent writings of Robert K. Merton, concerning "status role" and "role-set."[21] As the student moves among relationships with his parents, teachers, or friends, he may maintain a common set of role expectancies centering upon his being defined as a "student." This is not to be confused with the playing of multiple roles such as: boy, son, student, and friend.[22]

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[19] "Expectation" and "prescription" are used synonymously and have reference to the particular behaviors that an individual perceives others in his social system expect of him because he occupies a particular position (e.g. friend or child) in reference to them. Except as to the addition of the term "preceived" this use of "expectations" is similar to that of Linton, op. cit.; Merton, (1957) op. cit., p. 369. For a discussion of the relevancy of "appropriate" behavior see: Brookover (1959), op. cit.

[20] "Reference group theory" which stresses the influence of generalized groups is generally ignored in this investigation despite its apparent relevance. It is assumed that parents and friends make up both membership and reference groups for the adolescent. One task is to determine which "others" are most relevant to the student as he performs academically. See: H. H. Hyman, op. cit.; T. H. Newcomb, Social Psychology (New York: Harpers, 1958); R. K. Merton and A. S. Kitt, "Contributions to the Theory of Reference Group Behavior" in R. K. Merton and P. F.

A student may learn that he is obliged by certain others to achieve at a particular level in mathematics or else jeopardize his relationship with them.[23] When such a relationship occurs it is termed a "reciprocal-role relationship" in that it is based on a reciprocity of actions. A reciprocal-role relationship exists when an individual ". . . enacts a social role which is defined with reference to another (reciprocal) role, as in the relationship between patient and doctor . . .;"[24] or of father and son. Thus, as

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Lazarsfeld, (eds.) Continuities in Social Research (Glencoe: Free Press, 1950); and H. H. Kelly, "Attitudes and Judgments as Influenced by Reference Groups," in Guy Swanson (ed.) Readings in Social Psychology (New York: Henry Holt and Co., 1952).

[21] Ralph Linton, *op. cit.*, pp. 113-114; Robert K. Merton, (1957) *op. cit.* The theoretical importance of stressing research upon "student role" is more extensively developed in Chapter XVI in Brookover and Gottleib, *op. cit.*

[22] Robert K. Merton, (1957) *op. cit.*, p. 369; Ralph Linton (1936) *op. cit.*, p. 113; and Carl Cough and John Murray, "Significant Others and Evaluations," Sociometry XXII (1964) p. 502.

[23] Herbert C. Kelman, "Processes of Opinion Change," Public Opinion Quarterly, Vol. XXV (Spring, 1961), p. 64.

[24] *Ibid.*, p. 64.

Kelman further notes, ". . . if an individual finds a particular relationship satisfying, he will tend to behave in such a way as to meet the expectations of the other."[25] He behaves in terms of his perceptions of the obligations and rights of that relationship.

From this frame-of-reference, it is pertinent to determine those reciprocal-role relationships an adolescent has which influence his academic behavior through the specification of academic achievement obligations.

The relevancy of determining those reciprocal-role relationships of students, which include academic achievement expectations, also rests upon another assumption, namely, that a student, in organizing his behavior, recognizes that others are taking him into account as a student. Lindesmith and Strauss expressed this view and also alluded to the notion of "surveillance" by stating ". . . he regulates his behavior in terms of these supposed opinions and attitudes of others. He imagines what 'people' would say 'if they know' or what they will say 'when they know."[26] Under conditions of perceived surveillance it is believed that parents, friends, and teachers will have their greatest influence over the academic behavior of the student.

One implication of this position is that students take into account in their decisions those who they think are concerned about their behavior as students.[27] When a role-relationship is valued by a student and he perceives that others in that relationship are concerned about how he (the student) behaves in school, a reciprocal relationship exists.[28] Therefore, information about who students think of as being important in their lives along with information about who students tend to view as being concerned with their academic behavior is pertinent to this investigation.

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[25] Ibid., p. 64.

[26] Alfred R. Lindesmith and Anselm L. Strauss, Social Psychology, revs. ed. (New York: The Dryden Press, 1956) p. 394.

Review of Literature

The following represents a critical review of selected studies of self-concept which have appeared since April 1963. A review of the literature on self-concept prior to that date is contained in Self-Concept of Ability and School Achievement, II of the present series. Although two major critiques of "self-concept" studies and methodology have recently appeared[29] the following statement is different in that the review and criticism were written from the standpoint of the theory behind the research project namely, Meadian social behaviorism or its refinement--symbolic interactionism. This critique focuses upon the way "self-concept" as a theoretical construct is used and defined by researchers.

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[27] Use of the construct "role-taking" of "significant" and "relevant-others" is appropriate. As C. Wright Mills argued, "individuals respond only in terms of significant other persons rather than all others in the situation." C. Wright Mills, "Language, Logic, and Culture," American Sociological Review, IV (1939), 671.

[28] For a further discussion see: Merton and Kitt (1950), op. cit.

[29] D. D. Crowne and M. W. Stephens, "Self-Acceptance and Self-Evaluative Behavior: A Critique of Methodology," Psychological Bulletin, LVIII (1961) 104-121; Ruth Wylie, The Self-Concept: A Critical Survey of Pertinent Research Literature (Lincoln: University of Nebraska Press, 1961).

Introduction

Studies in the "sociology of learning" recently reviewed by Boocock[30] reflect an emerging concern for collecting information on the social context within which the student learns rather than the characteristics or traits of the student himself as has been the case in educational psychology. Fathers' occupational level, and other socio-economic status characteristics are the most sought-after of the social background variables. More and more, however, other types of social background data are being gathered such as the number of science courses taken during the teacher's college training, parents' educational level, size of school, neighborhood. amount of income, etc. Somewhat more sophisticated attempts at understanding the influence of the social context have dealt with such conditions as teacher/student ratios, rating of classroom structure, grouping procedures, competitive vs. cooperative atmospheres, and other related variables. Seldom, however, is attention given to the development of propositions about how these social background factors become translated into differential actions in the classroom. Warnings against interpreting associations between variables on the order of socio-economic status characteristics and school behavior as genuine independent-dependent causal type relationships are frequent. Yet researchers have generally not been guided by these warnings.

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[30] Sarane S. Boocock, "Toward A Sociology of Learning: A Selective Review of Existing Research," Sociology of Education, XXXIX (Winter, 1966), 1-45.

It is true that some theoreticians have long attempted to account for how individuals learn from others. In fact, there are many social-psychologies of learning. The idea commonly advocated by sociologists and social-psychologists that the actor organizes his behavior according to his definitions of the social context is one such theoretical attempt. But the translation of social-psychological assumptions into theoretical propositions and educational research, however, is virtually absent. This is particularly paradoxical for sociologists who have accorded lip-service to symbolic interactionism for the past thirty years.

Definitions of Self-Concept

Loose definitions of self-concept and instruments which are multi-factor by definition have led some researchers to discard "self-concept" as a relevant variable in understanding such behavior as achievement or dropping out of school.[31] Perhaps this is a reasonable contention because often the term "self-concept" in the title of the scale or study is the only identifying feature which might lead one to think of the study as a self-concept study. In such cases, were the title absent, it could be reasonably argued that conformity, ambition, adjustment, physical ability, physical appearance, or social virtues were the subject of investigation. Given this, it is not surprising that somewhat more carefully defined and homogeneous variables (such as previous academic achievement, IQ, and SES) yield better research results.

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[31] Roberta E. Beaird, "Self-Concept as Related to Adolescent School Drop Outs," Dissertation Abstracts, XXV, 10 (April, 1965) 5724.

Perhaps the best description of a large part of the self-concept literature is that it is verbally redundant or synonymous but nonreplicative. Literally hundreds of studies have been done on self-concept and reported in the educational, sociological and psychological literature. Yet few of these studies can be replicated because of either poor methodology or unclear conceptualization, or usually both. Confirmation or disconfirmation of others' findings is, therefore, impossible. Hence it is inaccurate to speak of conflicting results. For example, an examination of the research on whether there are sex differences in self-concept discloses what appear to be contradictory findings. However, a finding of no difference in one study does not allow us to say that a finding of differences in another study is disconfirmed. Depending on the measure used, girls have been reported to have both higher and lower self-concepts than boys. When the self-concept instrument taps conforming social behavior[32], a higher level of self-concept for females is noted as would be predicated from studies of social conformity, but when the instrument taps specific self-definitions of academic ability, lower scores are observed for girls than for boys.[33] To say that contradictory findings exist would be meaningless since these studies share little beyond the label of self-concept research.

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[32] Daniel O. Bowman, "A Longitudinal Study of Selected Facets of Children's Self Concepts as Related to Achievement, Intelligence, and Interests," Dissertation Abstracts, XXIV, 11 (May, 1964) 4536-4537.

[33] *Ibid*.

Self-Concept: Global or Specific

Ruth Wylie[34] states "most of the hundreds of researches aimed at studying self-regard are apparently based on the assumption that individual differences exist in an over-all or global self-evaluative attitude . . . . Even if a 'g' factor were to be demonstrated and a variety of instruments used, it seems clear that such a factor can account for only a small part of the variance in the instruments." Accordingly, Wylie explores a more restricted aspect of self-evaluation, "children's estimates of their ability to do school-work," which she assesses in a manner comparable to the way in which we assess self-concept of academic ability.

A more typical research approach, the use of sociometric techniques to assess self-concepts of the deaf, is made by Helen Craig.[35] Although the theoretical orientation of her study is consistent with the present one (i.e. a Meadian emphasis on the role of language in the development of self-concept) Craig's measurement of self-concept using sociometric procedures presents several difficulties.

As is true with many measures of self-concept, the sociometric method as commonly used supposedly assesses a general, affective self-concept where preference for certain people is the major subject. For Craig, the question was not how one evaluates himself, but rather whether one sees others as preferring to share his company or interact with him. And although this inter-personal attraction--aversion dimension may reflect the notion of self evaluation and comparison, little specific information is gained regarding the characteristics, qualities, or abilities, that the person defines himself as possessing or lacking which led him to predict his own sociometric standing. In fact, it is quite possible that as a person moves from one social situation to another he may view his immediate others as disliking what he thinks to be his strong points.

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[34] Ruth Wylie, The Self-Concept: A Critical Survey of Pertinent Research Literature, op. cit.

[35] Helen B. Craig, "A Sociometric Investigation of the Self-Concept of the Deaf Child," American Annals of the Deaf, CX, 4 (1965), 456-478.

Relevant to the question of general vs. specific measures of self-concept are the findings reported by Piers and Harris[36] on the reliability and construct validity of a 140 item multiple-factor self-concept scale. Moderate Kuder-Richardson formula 21 reliability coefficients of .78 and .88 were obtained for the 10th grade girls and boys. In addition, a general downward trend in these reliability measures was noted from the tenth, to sixth, to third grades for both girls and boys. Validity estimates for third and sixth graders (correlations between self-concept scores and IQ) were .17 and .25 respectively. Correlations between self-concept and academic achievement for third and sixth graders were .19 and .32 respectively.

Despite the correlations (which are relatively low) between self-concept, IQ and achievement, the question of the theoretical utility of these multi-factor self-concept scales remains. It is difficult to understand why a person's IQ and academic performance should be similarly related to a measure that has been shown to include separate factors such as social status, academic status, physical appearance, anxiety, popularity, and happiness. Perhaps the observed low correlations between scores on such multi-factor self-concept scales and IQ achievement, as noted by Piers and Harris, are a consequence of the assumption that "low" self-concept is reflected in lower scores throughout these categories. Such an assumption is not in accord, however, with our position or observations. For example, it would not be an incongruous situation for a person to define himself as very handsome, well-behaved, popular, happy, and stupid in physics. In this kind of situation, no correlation would be expected between self-concept scores involving these dimensions and physics achievement or IQ. On logical grounds, items which assess specific academic self-conceptions ought to be superior to general self-perception items when school achievement is to be predicted.

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[36] Ellen V. Piers and Dale B. Harris, "Age and Other Correlates of Self-Concept in Children," Journal of Educational Psychology, LV, 2 (1964), 91-95.

In another study of general self-concept in relation to school performance, one researcher[37] developed a set of 100 items which included three dimensions of self-perceptions assumed to be important: the importance of peer relationships (a social value), non-conformity, and satisfaction with self. Interestingly, the items which were found to be best in differentiating between high and low achievers were those dealing with the student's perception of the quality of his performance of school work, e.g. "My grades are good," and "I am accurate in my school work." Indeed, Piers and Harris[38] also confirmed the existence of an academic factor in a varimax analysis of 140 self-concept items based on Jersild's grouping of statements children make about themselves. Further support for this speculation, especially with reference to high school students, is the finding that the academic dimension of total self-definition tends to become more salient as the child grows older.[39]

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[37] Ralph J. Nash, "A Study of Particular Self-Perceptions as Related to Scholastic Achievement of Junior High School Age Pupils in a Middle Class Community," Dissertation Abstracts, XXIV, 9, (1964), 3837-3838.

In summary, it seems reasonable to conclude that the small observed associations commonly found between general self-perceptions and school achievement are primarily the result of the association between academic self-perceptions (known to be highly correlated with achievement) and general self-perceptions. In fact, as it is hypothesized in this study, if one controlled for the academic dimension of self-concept the association between general measures of self-concept and GPA will drop to zero.

Self-Concept: A Noun or a Verb

Illustrative of the vast majority of educational writings which begin with the idea that self-concept is an inner, intrapersonal trait "which an individual brings to the education setting," is a recent study by Tuel and Wursten.[40] And, not surprisingly, there has been an accompanying concern expressed for whether self-concept instruments "really" measure the "real" or phenomenal self.[41] From our Meadian perspective, however, self is a process rather than a thing, a verb rather than a noun, and by no means a fixed trait lugged around by the "learner." Self is conceptualized as a label referring to certain symbolic behaviors in which individuals engage.

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[38] Piers and Harris, op. cit.

[39] Janet M. Wickersham, "Self-Perceptions, in Relation to Grades and Report Cards, of Third and Sixth Grade Children from Above-Average Socioeconomic Backgrounds in Richmond and Wayne Township, Indiana," Dissertation Abstracts, XXVI, 6 (December, 1965) 3116-3117.

[40] John K. Tuel, and Rosemary Wursten, "The Influence of

Within our theoretical perspective, there is no "real" self entity apart from behavior. But this self-defining process is real in the sense that it is symbolic behavior, and in this sense, "ideal" selves or "aspirations" are real behaviors. When a person says "I am. . ." or "I would like to be. . .," these are "real" behavioral events no less worthy of study than any other behavioral event. As stated in the theoretical development, we are not concerned with the measurement of an inner phenomenological self-concept. We are concerned with self-concept as a process.

Self-Concept: Accuracy and Discrepancy

Frequently encountered in the self-concept literature is a concern for incongruities or discrepancies between an inferred "real self," a stated "real self," and/or a stated "ideal self."[42] A

Intra-Personal Variables on Academic Achievement," California Journal of Educational Research, XVI, 16 (March, 1965), 58-64.

[41] Piers and Harris, op. cit.

[42] J. E. Williams, "Changes in Self and Other Perceptions Following Brief Educational-Vocational Counseling," Journal of Counseling Psychology, IX (1962) 18-30; Clifford D. Miller, "An Exploratory Investigation of Self-Concepts of High Achieving, Average Achieving, and Low Achieving Groups of Junior High Pupils as Perceived by the Pupils and Their Teachers," Dissertation

similar concern is shown for incongruities between self-expectations and the perceptions of others' expectations.[43] The generally prevalent explanation for the need to study discrepancies between what is thought to be real and what is thought to be ideal is that large discrepancies may be harmful. All that can be empirically defended, at this point, is that these studies examine discrepancies between interpretations of stated "real" and stated "ideal" selves. Perhaps some of these discrepancies are disfunctional to a person. Perhaps some are not. At any rate, the research literature is less than clear on how these discrepancies cause the harm that is assumed to result from them. In spite of the long tradition of research on this subject, no one has demonstrated conclusively that poorer school achievement, poorer mental health, or poorer anything else is a consequence or even a concomitant of a discrepancy between stated "real" and stated "ideal" self-concepts.

According to the theoretical orientation of the present study, both "ideal" self and "real" self are behaviors which emerge in social discourse with self and others. A comprehensive description of the sources of "ideal" self, if we were to use the term, would include the normative perscriptions perceived by the actor as occuring within his primary and secondary groups. Hence, "ideal" self as well as

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Abstracts, XXVI, 3 (September, 1965) 1483-1484; Mildred T. Richardson, "Discrepancy Measurements Relating Student Self Concept of Mental Ability with Mental Health Stability, and Empirical Study of Ninth Graders," Dissertation Abstracts, XXVI, 5 (November, 1965), 2592.

[43] Mary C. Davis, "Vocational Choice and Self-Others' Expectations Congruence as a Function of Ego Identity," Dissertation Abstracts, XXVI, 2 (1965), 1168; Mildred T. Richardson, op. cit.

"real" self would likely correspond with cultural boundaries. And although some variation in what individuals consider "ideal" self may be observed, there will be a large degree of commonality among the "ideal" perspectives of members of the same society.[44] On the other hand, societies which have completely different norms would show differences in definitions of "ideal" self when the perspectives of members of each society are compared.

If the assumption is true that self-concepts emerge through a process of language interaction in which the person takes into account how he is defined by others, and if all others in the life of a person provided similar definitions of a person, we would anticipate low discrepancy between "real" and "ideal" self. How often, though, ought there be complete agreement in the definitions others hold of a person? Because a person typically interacts with multiple others (usually representing varying cultural perspectives) and because of variations in role and action context, different evaluations and definitions are communicated. Again it is pertinent to note that no one so far has shown that the discrepancy level in self concept affects school achievement. Other questions raised by the typical study of discrepancy between real and ideal, become more apparent when we recognize that statements of a preference for characteristics, values, or personal attributes, may reflect what the respondent has learned to be a "general good." He may believe it is generally right for all people to drive carefully, including himself, but yet prefer that he drive in an exceptional way. Apparently the assumption behind the "real-ideal" comparison is that a person's general statement of the "ideal" has a very important influence upon his behavior. But as Krathwohl, Bloom, and Masia have indicated[45], the acceptance of a value, preference for a value, and commitment to a value are separate dimensions. A person may learn what is appropriate (i.e. being athletic), and accept and prefer this condition, but not engage in this behavior because he is not committed to it (that is, not having stated to others that he will) or because others important to him do not expect this commitment. Possibly, articulation of an ideal state is of little utility in the study of individuals within a society.

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[44] Merville C. Shaw, and Gerald J. Alves, "Guidance in Practice: The Self-Concept of Bright Academic Underachievers," Personnel and Guidance Journal, XXXXII, 4 (1964), 401-403; Densley Harley Palmer, "A Comparison of the Consistency of the Self-Judgments of Physically Disabled and Non-Disabled Male College Students," Dissertation Abstracts, XXVI, 8 (February, 1966), 4456.

On the other hand, self-predictions of how one will behave in the future, rather than wishes or ideals, have been found to be quite useful as predictors of subsequent achievement, even in comparison with previous school performance and standardized tests.[46] Not only were self-predictions better predictors of college achievement than were high school grades and American College Test scores, but they lost less predictive accuracy after the freshman year than did the more traditional measures. And of equal significance, whether a person liked himself or not did not affect the accuracy of self-predictions.

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[45] David R. Krathwohl, Benjamin S. Bloom, and Bertram B. Masia, A Taxonomy of Educational Objectives: Handbook II: The Affective Domain. (New York: David McKay, 1964), Appendix A.

[46] Karl Elton Keefer, "Self-Prediction of Academic Achievement by College Students," Dissertation Abstracts, XXVI, 8 (February, 1966), 4337.

Most theorists who study a "real" self are interested in the "accuracy of self-evaluations."[47] Our position is that self-concept of academic ability is of critical importance to the extent that it limits what a person will attempt to do. If the person is inaccurate or accurate, assuming a "real" self, the effect on the individual's decisions is the same. We do not reject the notion that, in terms of skills, affective states, and resources, there may be a "reality" in what can be accomplished by anyone in any given condition. We do reject, however, the notion that accurate self-appraisals ought to be based upon IQ with all of its measurement problems or on the assumption that one's ability to learn is fixed for the future on the basis of his current performance. Too often such terms as "underachiever," "overachiever" or "psuedo-retardate" are coined to excuse faulty theory and poor measurement.

In one study[48] on the accuracy with which teachers were able to describe students' "real selves," where accuracy of description was defined as the agreement between a student's self reports (by "Q" sort methods) and a teacher's description of student's self reports using the same technique, it was concluded that teachers were able to infer high-achievers' descriptions of real self with greater accuracy than they could for low achieving students. This finding becomes understandable when coupled with the observed tendency of some teachers to ignore "stupid" students. Moss and his associates found that students defined as less able were not being taught, thus adding to their educational retardation.[49]

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[47] E. L. Cowen and P. N. Tongas, "The Social Desirability of Trait Descriptive Terms: Application to a Self-Concept Inventory," Journal of Consulting Psychology, XXIII, (1954), 357-360.

[48] Clifford D. Miller, op. cit.

Hall[50], in an interesting study, concluded that the self-conceptions of 14-16 year old working-class delinquents differ from those of non-delinquents. However, while Hall defined self-conception as identities and values, dimensions commonly used in real vs. ideal self studies, he observed that delinquents and non-delinquents were alike in that delinquents strongly committed to the delinquent sub-culture showed as high levels of self-evaluation as did non-delinquents committed to the dominant culture. The importance of this finding is that without information concerning the subjects' specific reference groups one may prematurely conclude that individuals are alike or different. Considered outside of the social context, such comparisons of self-concept are meaningless.

Research on discrepancies has usually not considered the normative source of self and the social interactional antecedents of self. In so doing, questions have been designed to assess real selves as traits independent of social conditions, which apparently should be useful for understanding persons, in their varied roles. There is little evidence, however, that any self construct has a common influence from one situation to another. Definitions of self such as "I am noisy," "I am fat," or "I am not talented," may be respectively predictive of how a boy will behave when his teacher leaves the room, the snugness of the clothing he will select, or whether he will take music lessons, but when added together into a global "real self" may be of little value in predicting his school attendance pattern. Not surprisingly, as previously discussed, global scales attempting to measure self-concept have had little observed association with behavior. They fail to identify the relevant self-concepts, those which are important factors in a particular social situation and those which are not.

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[49] James Moss, Comments at Conference on Research on Exceptional Children at Michigan State University, 1965.

[50] Peter M. Hall, "The Self-Conception of Juvenile Delinquents: A Symbolic Interactionist Approach," Dissertation Abstracts, XXV, 4 (October, 1964), 2650.

In contrast with our position that a student who conceives of himself as being a person with limited academic capabilities is limiting the range within which his academic achievement can vary, educational practice stresses the necessity for getting students to accept "objective" data concerning their academic capabilities. This is a major goal for many counselors where, in essence, a counselor attempts to find efficient methods (perhaps by becoming a credible other) for convincing a low scoring student that he ought to view himself as unable to learn certain academic subjects. And given this condition of limited ability, many "worthwhile" vocational and social alternatives are cited as still available which the counselee ought to accept as satisfactory for him. The "acceptance" of a limiting self-definition of academic ability is deemed essential for the "adjustment" or "mental health" of those students labeled less able by the clinician.

A counseling failure, under this ideology, might be the student who scores 90 on an IQ test but insists that he has the ability to go to graduate school. He will supposedly be better adjusted if he defines his chances of going to graduate school as "somewhat unlikely." Yet in a recent study, it was found that good and poor adjustment groups do not differ in their self-assessments with respect to objective test data.[51] If this study is repeated with the same results, perhaps a change of theoretical stance is in order. In any event, as previously cited, whether a person likes himself or not was found to be a poor predictor of academic achievement. Academic self predictions,on the other hand, were much better predictors of behaviors in school than were adjustment "inventories."

Self-Concept: Others

Many researchers seem to assume that others influence the development of self conceptions, but show little awareness of how they exert that influence. Attitudes toward subjects are commonly collected along with self-concept data, but seldom are hypotheses tested concerning the influence of others. Theoretical development is frequently a *post hoc* enterprise.

An illustration of how the dimension of "others" has slipped into the research on self-concept without much concern for testing hypotheses derived from theoretical propositions concerning the influence of others is illustrated in a study of "bright academic underachievers."[52] "Underachievers" reported more negative self-concepts than did the achievers. Female "underachievers" were more negative, however, than male "underachievers" in their perception of how they were perceived by others. This difference is then attributed to a sexual difference in a "general perceptual mode" in which . . . "the negative perceptual attitudes of male under-achievers appeared to revolve primarily around themselves while the negative attitudes of female underachievers appeared to be centered on their perceptions of others of themselves." It is difficult to determine what this post hoc theorizing means, however.

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[51] Robert E. Brown, "Acceptance of Scholastic Ability Data and Personal Adjustment," *Vocational Guidance Quarterly*, XIV, 2 (Winter, 1965-66), 111-114.

One study[53], examining the discrepancy between a student's self estimate of ability and a teacher's estimates of the student's ability, concluded that "the student may form the self-concept of his intelligence by mirror image of the teacher's estimate of him." At the same time, the study concluded that the stability of a student's mental health is also related to the teacher's estimate of his academic ability. The teacher rated the "mentally unstable" student below his measured academic ability, while the "mentally stable student was estimated as more academically capable than indicated by his test scores.

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[52] Merville C. Shaw and Gerald J. Alves, op. cit.

[53] Mildred T. Richardson, op. cit.

One study[54] designed to "explore some of Mead's treatments of the origin of self" examined the relationship between self-concept, and expectations and characteristics of four significant others, and "found no relationship," as measured by correspondence, between "Who am I" responses and descriptions of "significant others." While the researcher explains his negative findings on the basis of low instrument reliability and other methodological problems, a more compelling explanation, coupled with the poor methodology, is that the derived hypothesis was false. From our perspective, also influenced by Meadian work, self-concept need not correspond with characteristics of significant others. Individuals may be influenced by others quite different from themselves.

In a study of changes in self-concept (as influenced by teachers and peers) over a six-month period among sixth graders, it was hypothesized that childrens' self-definition in school work areas (work habits, mental abilities) would move toward initial teacher ratings while self-definitions in physical and social activities would move toward agreement with peer nominations.[55] Self-concepts remained so stable over the seven-month period, however, that an adequate test was not provided.

Using sociometric techniques to assess social adjustment, investigators have found some support for the idea that successful relationships with peers occur in conjunction with academic success. Such observations, however, of an association between peer choice--a common technique for determining social adjustment--and academic achievement presents theoretical and methodological problems which are commonly neglected.

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[54] Theodore Kemper, "The Relationship Between Self-Concept and the Characteristics and Expectations of Significant Others," Dissertation Abstracts, XXV, 1 (July, 1964), 665.

[55] Leeha C. Zion, "Body Concept as It Relates to Self-Concept," The Research Quarterly, XXXVI, 4 (1965), 490-495.

If high academic performance of a student is viewed as directly dependent upon his acceptance by his classmates, then the obvious implication is that high academic achievement for him is generally valued by these classmates--that they prefer that he achieve at high levels. But, educational researchers have cast doubts on such an implication. Coleman[56] in his classic study, concluded that the high school peer culture in the United States is more likely to accord honor and social acceptance on the basis of dating and sports than on the basis of high achievement. Erickson presents evidence that high school students do not tend to make academic achievement a basis for friendship. Many students apparently can perform at high levels without being rejected by their friends. (See Erickson in Part II, Chapter IX)

One explanation for the observed association between peer choice and academic standing is that some of the sociometric items assess the peers' evaluations of the academic ability of the student being rated. Prior research by the present authors confirm an in-direct relationship between perceived peer evaluations and academic achievement, but self-concept of ability functions as an intervening variable. Therefore, if the sociometric test taps evaluations of academic ability, a small but statistically significant association is expected between peer choice and academic performance. However, when self-concept of academic ability is controlled, this relationship should reduce to near zero.

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[56] James Coleman, The Adolescent Society (New York: The Free Press, 1961). Coleman even contends that high achievement is likely to be a source of rejection by peers. While not in accord with this last contention, we recognize that peers may be significant others to high school students; See Chapter III of this report.

The inclusion of questions which possibly tap the school ability dimension in some self-concept scales can be observed in Muma's instrument.[57] Out of 10 items, 3 may assess evaluations of ability by asking with whom the peer would most and least like to be in a class project, on a committee, and in a school club or group. Until the effect of items like these are removed from sociometric studies of peer acceptance, it will remain difficult to determine whether the relationship between peer acceptance and academic achievement is caused by an evaluation of academic performance by peers, some other reason, or the confounding effect of evaluations of academic ability items.

Self-Concept: An Intervening Variable

Vaughan[58] observed a greater relationship between perceived evaluation of others and self-concept than between actual evaluations of others and self-concept. But his citation, without interpretation of the finding that perceived evaluations were positively associated with academic performance, provides no clue as to how these perceived evaluations become translated into action. Certainly it does not suggest that self-concept intervenes. Had self-concept of scholarly ability been controlled, the association might have been reduced, perhaps to zero.

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[57] John R. Muma, "Peer Evaluation and Academic Performance," Personnel and Guidance Journal, XXXXIV, 4 (1965), 504-509.

[58] Teddy R. Vaughan, "Group Determinants of Self-Conception: An Empirical Assessment of Symbolic Interaction Theory," Dissertation Abstracts, XXV, 11 (May, 1965), 6813.

Recognizing the importance of the student's perception of his parent's support of school (i.e., affective active help, emphasis on academic achievement), and the reciprocal nature of the parent-child role where early school successes or failures may serve to modify the parent's conception of the child, Luszki and Schmuck[59] studied 727 pupils drawn from 18 elementary, 4 junior high, and 5 senior high schools. Self-definitions were studied under the rubric of "esteem" but were not conceptualized as intervening between the evaluations of others and action. Rather the impression given is that perceptions of parental support were necessary and sufficient conditions for eliciting better school performance. The powerful influence of parental evaluations on the child and the necessity of working with parents was well illustrated. But the basic idea of the present research, that evaluations of others are only translated into action to the extent that they result in a parallel self-conception, is lacking.

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[59] Margaret Luszki, and Richard Schmuck, "Pupil Perceptions of Parental Attitudes Toward School," Mental Hygiene, II, 2 (1965), 296-307.

Some of the interesting findings of the Luszki and Schmuck study were: 1) "Despite the clear association between a pupil's perception of his parent's interest in school and that parent's educational level, no statistically significant relationship was found between the father's occupational status and the pupil's perception of parent's interest in school;" 2) "Age was related to perceived parent's support, with younger pupils perceiving their parents as supporting academic striving more than older pupils;" 3) "Boys perceived more parental academic achievement pressure than girls; 4) "Boys in the working and lower-middle classes perceived more parental achievement pressure than boys in the upper-middle class." (Again, these findings contradict the opinion that low social economic status variables operate directly to minimize the importance of schooling) 5) "Pupils who perceived their parents as holding supportive attitudes toward school life utilized their abilities more completely than pupils who perceived less parental support."

Self-Concept: Inducing Change

When self-concept is treated as a dependent variable to be modified, examination of the literature discloses that several different strategies have been divised to elicit change and to determine whether or not specific conditions exert differing influences. Clark[60] for example attempted to use the enactment or saying of enhancing self-statements to induce improved self-concepts over a one week period. It was hypothesized that those subjects who had low pretest self-concepts would show an increase when acting out roles involving the articulation of high self-concept statements provided by the experimenters. From the social interaction point of view the disconfirmation of his hypothesis is not surprising. If self definitions are influenced by the actor's perceptions of how certain others who have credibility do view him the mere articulation of high self-concept statements alone is not likely to be sufficient to create a new definitional response to self.

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[60] Carl T. Clarke, "Changes in Self-Concept as a Function of Dissonant Role-Playing," Dissertation Abstracts, XXVI, 3 (September, 1965), 1771.

Despite being otherwise aware of many of the deficiencies of self-concept research, Wylie[61] attempted to determine if sex, race, and socio-economic level resulted in different self-concepts levels, under the overall hypotheses that differences in cultural learning opportunities result in differences in self-concept. Just what those cultural differences in learning opportunities are, how they are related to Wylie's major variables, or how they become translated into self-conceptions are not clearly treated.

Neither providing a subject with information in the form of objective test scores[62], nor providing evaluations of skill by experts[63], nor providing group interpretation[64] of test scores, nor individual counseling[65] were found to be effective in eliciting change for more than a few days. These studies are difficult to interpret.

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[61] Ruth Wylie, "Childrens Estimates of Their School-work Ability, As a Function of Sex, Race and Socio-economic Level," Journal of Personality, XXXI, 2, 1963, 203-224.

[62] David A. Hills, and John E. Williams, "Effects of Test Information Upon Self-Evaluation in Brief Educational-Vocational Counseling," Journal of Counseling Psychology, XII, 3 (1965), 275-281.

Some researchers have been careful to point out that self-evaluation may depend on ability as reflected in task achievement but that the evaluation of the task achievement is carried out by others.[66] From this general premise, it was hypothesized that when students are told by a competent authority that they have high ability in an unfamiliar task they will as a result choose to perform at higher difficulty levels. And the self-evaluations of ability of those informed that they are able will be higher than those who are told that they are average or low in ability.

The results of this last experiment were in accord with the hypothesis that an authority's "arbitrary evaluation" was effective in influencing the level of task difficulty chosen by subjects. Yet no differences were generated in self-evaluation of ability. Searching for an explanation, it was proposed that the positive valence of success in this culture postulated by Escalona and Festinger's "unidirectional drive to evaluate abilities upward in a Western culture" may have acted as a buffer or counter agent for the low evaluations expressed by an authority. But another alternative, based on the theoretical orientation of the present study and confirmed in past research, is that short-term evaluations by an expert are inefficient in manipulating self-evaluations of subjects. A necessary condition for the exertion of a powerful influence by particular others is that they be continually taken into account by the actor. How can "experts" obtain such importance in the lives of most students after only limited contact with them?

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[63] Florence Denmark, Dorothy Murgatroyd, and Albert Pepitone, "Effect of Differential Valuation on Group Level of Aspiration, Decision Time, and Productivity," Journal of Social Psychology, LXVII, 2 (1965), 201-209.

[64] Jonell H. Folds, "A Comparison of the Recall of Test Scores and Changes in Self-Concept of College Students Following Three Methods of Test Interpretation," Dissertation Abstracts, XXVI, 4 (October, 1965), 2073-2074; David A. Hills, and John E. Williams, op. cit.

[65] Robert E. Brown, op. cit.; David A. Hills and John E. Williams, op. cit.

[66] Florence Denmark, Dorothy Murgatroyd, and Albert Pepitone, op. cit.

Another research[67] found that greater frequency, intensity, and duration of interaction yielded higher associations between self-conception and perception of others' evaluations. Further support for the contention that the evaluators must be important "others" to the subject or that the group to which these "others" belong is one in which the subject desires membership is found in a study of a sorority rush by Fontana.[68] Fontana concluded that "subjects who were accepted as members in a sorority showed a steady rise in self-evaluation from the beginning to the end of rush. Subjects rejected at the end of rush increased in self-evaluation during rush while they were being accepted for further consideration and then decreased in self-evaluation at the end of rush when they learned they had been rejected."

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[67] Teddy R. Vaughan, op. cit.

[68] Alan F. Fontana, "The Effects of Acceptance and Rejection by Desired Membership Groups on Self-Evaluation," Dissertation Abstracts, XXV, 6 (December, 1964), 3675.

Another strategy for changing self-concepts includes the use of "others" in the treatment program. In a study of the effects of an experimentally-induced milieu on the self-acceptance of severely physically disabled patients between 50 and 75 years of age, Rolnick[69] found patients exposed to the experimental treatment showed more increase in self-concept over time than subjects in two control groups. It is interesting to note that family members were included in the overall treatment program for the experimental group, and lower echelon staff who interacted with the patients everyday were used as ancillary therapists.

Wiesen[70] tested the hypothesis that self-concept as a learner varies in relation to the organizational climate of the classroom. Despite the limiting fact that 40% of his subjects had IQ's of 120 and above, he concluded that "self-concept as a learner had a direct relationship with organizational climate in the classroom that was independent of intellectual capacity."

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[69] Esther S. Rolnick, "The Effect of Environmental Therapy on Changes in Self Concept," Dissertation Abstracts, XXVI, 7 (1966), 4066-4067.

[70] Henry H. Wiesen, "An Investigation of Relationships Among Intelligence, Organizational Climate in the Classroom and Self-Concept as a Learner Among Ten-and Eleven-Year-Olds," Dissertation Abstracts, XXVI, 11 (1966), 6520-6521.

Summary of Literature Review.--A major deficiency which many self-concept studies share is a shotgun approach to research where a vast array of variables are analyzed without enough attention being paid to the theoretical network in which these variables are embedded. Instead of clearly articulating the underlying theory from which the research stems and deriving hypotheses which will test it, variables are selected from past research on the basis of what often appears to be the fancy of the researcher. For example, one research report begins by alluding to family characteristics and living styles as important determinants of school adjustment and arrives at the following general statement: "General affective support of the child and his role as a pupil, when these positive attitudes are perceived by the child, help him to develop both a high level of personal esteem and positive attitudes toward school which in turn facilitate the child to utilizing his abilities at high level, and his better performance in school further enhances his self-evaluation and feelings about school."[71]

But instead of developing concise, testable hypotheses including well-defined, relevant constructs, the researchers embark upon the measurement of parental education, interpersonal affective peer relations, utilization of abilities, self-esteem, family social-class, and school adjustment. And instead of a test of the general hypothesis (or more aptly hypotheses), the result is a variety of non-integrated findings.

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[71] Margaret Barron Luszki, and Richard Schmuck, op. cit.

Major Propositional Statements

Two underlying assumptions of the discussion thus far are: one, neither the process nor the organic mechanisms necessary for learning culturally-required behavior are different from the processes and mechanisms for learning the types of behavior taught in the classroom; and two, a student learns to behave in the classroom in ways which he considers appropriate to himself (the definitions of self as an object). The propositions focused upon in this study, however, are:

Proposition 1. A functional limit on a student's ability to learn in school is set by his "self-concept of academic ability;"

Proposition 2. A student's self-concept of academic ability is acquired in interaction with his significant others through his perception of their "evaluations of his academic ability;"

Proposition 3. A student's self-concept of academic ability is an "intervening variable" between his perceptions of others and his attempts to learn in school.

Each of the above propositions are slightly modified versions of theoretical statements made earlier by the senior author.[72] From these propositions, general research objectives and hypotheses were formulated for the previously reported research and the studies reported here. These studies share a similar concern for the same basic propositions and hypotheses. The primary concern of this research was to test the basic hypothesis over time with the same population of students. The results of this longitudinal study are reported in Chapter IV. In conjunction with the longitudinal research we did a follow-up of the experimental studies carried out under Cooperative Research Project Number 1636. This is reported in Chapter V. Throughout the research program we have sought to identify the persons who function as significant others for the secondary school students in this population. The results of this analysis are reported in Chapter III. Concommitant with the major research program reported in these chapters of Part I, a number of related studies have been carried on by students associated with the major project. These are summarized in Part II. The specific objective of these studies follow.

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[72] Brookover, (1959), op. cit.

Objectives and Hypotheses

The major objective of the longitudinal research was predicated upon the proposition that students' self-concept of academic ability results from their perceptions of the evaluations significant others hold of their ability. The students' self-concept of ability in turn functions to limit the level of academic achievement attempted.

As previously discussed, the relationship of perceived evaluations of significant others to self-concept is conceptualized as a necessary and sufficient condition, i.e., if the student's significant others change in their evaluations of the student's ability, this change will be reflected in the student's self-evaluation of ability. A change in the former will be reflected in a change in the latter. The relationship of self-concept of ability to achievement, on the other hand, was defined as being a necessary but not a sufficient condition for the occurrence of a particular academic performance.

The study of the development and impact of self-concept of academic ability as both a "limiting variable," and as an "intervening variable" presents several methodological problems not commonly dealt with in research. As noted in the review of literature, the majority of investigations concerned with the emergence and consequences of self-concept have employed the usual correlation and chi-square procedures for determining associations.

Use of these techniques in static analyses are based upon a linear or functional definition of the relationship rather than "necessary but not sufficient." Moreover, since changes in subjects are not observed, it can be argued that despite an apparent sharing of distributions, these variables do not change concomitantly with one another as would be necessary before inferring any independent-dependent relationship. Prediction, in the former cases, merely means the sharing of common regression lines and is quite different from the prediction of change in a dependent variable based upon change in the independent one.

Far too often single cross-sectional surveys have been attempted with the stated objective of answering questions about developmental phenomena without the benefit of developmental data. Seldom are subjects followed over time to determine if changes in the hypothesized independent variables are accompanied by changes in the hypothesized dependent variables.

A contribution of this study to the understanding of the function of self-concept of academic ability is that each subject was observed at grade levels, grades seven through twelve, making it possible to test hypothesized associations with change data.

Major Hypotheses

Self-concept of academic ability is viewed as being primarily dependent upon, in a linear way, the perceptions of others - namely, the higher the perceived evaluations of others the higher the self-concept. Self concept of academic ability also has a relationship to academic achievement which is that of a threshold condition, - namely, a necessary but not sufficient condition.

Of theoretical and empirical relevance, therefore, are the following hypotheses:

H_1: Student perceptions of the evaluations of their academic ability by others (parents, friends, and teachers) are associated with self-concept of academic ability at each grade level.

H_2: Changes in the perceived evaluations of their academic ability by others are associated with parallel changes over time in self-concept of academic ability.

H_3: Self-concept of academic ability is associated with academic achievement at each grade level.

H_4: Changes in self-concept of academic ability are associated with parallel changes in academic achievement.

H_5: Self-concept of academic ability is a necessary but not a sufficient condition for the occurrence of high academic achievement.

Hypotheses #1 and #3 have been confirmed at various grade levels in previous research[73] by the authors and other investigators (see Part II Related Studies). Hypotheses two and four represent a more unique contribution because of their dependence for test upon sequential data. Limited analysis of such data from grades seven through ten was reported earlier, but these hypotheses can now be tested by data from the same students in grades seven through twelve.

An Intervening Variable

Predicated on the assumption that self-concept of academic ability is dependent upon perceived evaluations of significant others and that academic achievement is related to these perceptions only indirectly through the association of those perceptions to self-concept and other factors, it is hypothesized that:

H_6: The magnitudes of the associations between

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[73] Wilbur B. Brookover, Ann Paterson, and Shailer Thomas, Self-Concept of Ability and School Achievement, U. S. Office of Education, Cooperative Research Project #845, East Lansing: Office of Research and Publication, Michigan State University, 1962; Wilbur B. Brookover, Jean M. LePere, Don E. Hamachek, Shailer Thomas, and Edsel L. Erickson, Self-Concept of Ability and School Achievement II, U. S. Office of Education Cooperative Research Project #1636, East Lansing: Bureau of Educational Research Services, Michigan State University, 1965.

> perceived evaluations and self-concept of academic ability are greater than the associations between self-concept of academic ability and achievement.

If self-concept of ability "intervenes" between academic behavior and the past perceived evaluations of others, then it can also be hypothesized that:

> H_7: The associations between self-concept of academic ability and achievement are greater than the associations between perceived evaluations and achievement.

Additional confirmations for the view that self-concept of academic ability intervenes between the perception of others and achievement may be gained by testing the derived hypotheses that:

> H_8: The association of changes in perceived evaluations with changes in self-concept of academic ability is greater than is the association of changes in the perceived evaluations with changes in achievement.

and:

> H_9: The association of changes in self-concept of academic ability with changes in achievement is greater than is the association of changes in the perceived evaluations with changes in achievement.

Exploratory Questions

In addition to the above hypotheses several questions and hypotheses were advanced concerning competing explanatory variables:

1. To what extent does variation or change in socio-economic status, measured intelligence, and general self-esteem account for variations or change in the associations between self-concept of academic ability and academic achievement?

2. Are changes in achievement level associated with changes in socio-economic status and measured intelligence?

3. To what extent do variations in socio-economic status and measured intelligence account for associations between perceived evaluations and self-concept of academic ability?

4. Are changes in perceived evaluations associated with changes in socio-economic status or measured intelligence?

5. Do changes in self-concept of academic ability occur more often among students according to socio-economic status level, measured intelligence level, or school attended?

Follow-Up of Experiments to Change Self-Concept and Achievement

During the ninth grade, low-achieving students in the same class as our longitudinal subjects formed a pool from which subjects were drawn to conduct three separate experimental programs. Each experiment was designed to test a specific strategy for enhancing self-concept of ability and thereby increasing academic achievement. These experiments under the direction of the senior author are reported in detail in a final report U. S. Office of Education Cooperative Research Project No. 1636.[74]

The three experimental strategies to enhance the self-concepts of academic ability and academic expectations of students were designed to: (1) enhance the academic expectations and evaluations parents held of their children's ability; (2) introduce an "expert" from a university who communicated to students, directly and formally, information designed to enhance their self-concept of academic ability; and (3) counteract the effect of interaction with parents who have low expectations for their children through interaction between students and a counselor who held positive images and high expectations for the student.

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[74] Brookover, LePere, *et. al.*, 1965, *op. cit.*

These experiments were important in several ways. Perhaps the most important factor was that the only experiment which was successful involved working through parents in a manner consistant with the behavioristic theory of this study--symbolic interactionism. These studies also provided experimental evidence that the self-concept of ability behavior can be changed with resulting concomitant changes in achievement behavior.

It is quite possible, however, that the hoped-for effects of the "expert" and "counselor" experiments would be missed in a study which did not follow the subjects over a long period of time after the treatment. Perhaps there were delayed reactions. Similarly, the impact of the "parent" experiment may not be fully understood. Perhaps the increased achievement of the students in the parent experiment would fall off when the treatment was discontinued. Certainly reinforcement theories along with symbolic-interactionism would suggest that if subjects are not continuously reinforced in their higher self-concepts behavior their self-concepts will tend to lower, particularily when the low self-concept behavior has been repeated, for many years and may still be reinforced by many others.

Therefore, the general objective of the follow-up of experimental subjects is to examine, in the eleventh and the twelfth grades, the persistence of the effects of treatment conducted on ninth graders to enhance self-concepts of ability.

The specific hypotheses which were tested and for which further confirmation or rejection are sought are[75] stated in Chapter V.

Related Studies

Each of the related studies summarized in Part II of this report utilized data or instruments of the major research program or was stimulated by it. These studies have varying degrees of relevance for the major objective of this research but all contribute to the social psychological conception of student behavior out of which this research developed.

In Chapter VII Ann Paterson summarized a thorough analysis of the reliability and validity of the self-concept of ability scale. The following chapter summarizes Joiner's reliability-validity analysis of the modification of this instrument for deaf children. This is a pilot study for another project studying the use of such scales for assessing handicapped students.[76]

In the design of this project we proposed to analyze the relation of self-concept of ability to the persistance of students in school. The study by Kenneth Harding summarized in Chapter XIII included a comparison of the self-concepts of students who drop-out and students with comparable IQs and grades who stayed in school. This study therefore fulfills one of the original objectives of this research.

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[75] For a more thorough description of the experiments see Brookover, LaPere *et*. *al*. (1965), *op*. *cit*.

[76] Edsel L. Erickson, Lee M. Joiner, Vivian Stevenson, and Lou Alonzo, *Scales and Procedures for Assessing Hearing-Impaired and Visually Impaired Students, U.S.O.E. Cooperative Research Project No. 6-8727*, (Western Michigan University, Kalamazoo, Michigan, completion date, September 1967).

The other studies in this series are extensions or refinements of the major research reported previously and in Part I. Each therefore contributes to the general objectives of this study. The specific objective of each are provided in summaries reported.

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CHAPTER II

THE RESEARCH METHODOLOGY

This chapter is divided into four main sections. The first section discusses and describes the longitudinal, cross-sectional, and experimental populations and samples, and the sites of the research. The second section operationally defines each of the major variables. In this section, the reliability findings are also presented -- along with data on the stability of student responses for each of the major variables over the period of this study. The third section discusses data collection procedures. The fourth section deals with the analytical procedures used in this study.

Populations, Samples, and Sites of Research

All of the students in each of the populations were originally in the seventh-grade class during the 1960-1961 academic year in the four junior-high schools of a midwestern city (called Oldtown in the report) with a population of approximately 110,000. The total seventh-grade population numbered approximately 2,000 students. From this class, three populations were identified and are described below.

Longitudinal Subjects

For the longitudinal study, all students who met the following criteria were included in the population studied.

1. Questionnaire data was available from the seventh through the twelfth grades.
2. Academic Achievement Information (GPA) was available from the seventh through the twelfth grades.
3. Caucasian.
4. All subjects were promoted regularly from grades four through twelve. Students who repeated grades or who withdrew and re-entered were excluded.
5. All were participants in the regular school program. All who were in special education programs (such as those for the retarded) and all who were in experiments designed to enhance self-concept of academic ability during the ninth grade were excluded.

Approximately 100 Negro students were not included because prior research with these students suggests some differences in self-concept and related variables.[77]

The total N of longitudinal subjects equalled 562 including 307 females and 255 males.

Cross-Sectional Subjects

This category included all students in the school system at the grade level being tested except Negro students, special education students and persons of unknown race. Since information on race was not available subsequent to the 10th grade, some subjects who had moved into the school system were excluded from the cross-sectional analysis. There is, therefore, a likelihood that the 11th and 12th grade cross-sectional data will be more like the longitudinal data. The N's for each grade level were: Grade 7 = 1050, Grade 8 = 1448, Grade 9 = 1507, Grade 10 = 1363, Grade 11 = 982, Grade 12 = 676. The seventh grade cross sectional sample included only those students for whom complete prior school records were available.

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[77] Richard J. Morse, "Self-Concept of Ability, Significant Others and School Achievement of Eighth Grade Students: A Comparative Investigation of Negro & Caucasian Students," (Unpublished M.A. Thesis, Michigan State University, 1963).

Experimental Subjects

In 1962-1963, when the class was in the ninth grade three experiments were conducted in three junior-high schools with students drawn as random samples from those Caucasian students who had achieved below the mean grade-point average of the class in their respective schools for the two previous semesters. The grade point averages were computed on the four subjects of math, English, social studies and science. These low achieving students are hereafter referred to as "low achievers." Each of the three experiments was designed to evaluate a different method of enhancing the self-concepts of low-achieving students and thereby increasing academic achievement. One experiment, hereafter referred to as the "Parents Experiment" involved specific strategies for helping parents raise their childrens' self-conception of academic ability without their children becoming aware that they were the objects of any special attention. From the population of low achievers in one junior-high school, three samples were randomly drawn. One sample was designated the experimental group; the second, the placebo group (to test for Hawthorne effects), and the third, the control group. However, since this particular experiment depended on the cooperation of parents, a few exchanges of subjects between control and experimental groups were made in order to secure enough subjects in the experimental group. Thus, although the attempt was made to maintain randomness within each group, it was not completely possible to do so.

The second experiment, which was conducted in another junior-high school and hereafter referred to as the "Expert Experiment," concerned the effects of formal presentations by a person defined as an "expert" from "The University" on low-achieving students. From the low achievers in this school three samples were randomly drawn and again designated as experimental group, placebo group, and control group.

The third experiment, which was conducted in still another junior-high school and which is hereafter referred to as the "Counselor Experiment," was concerned with the effects of counseling on the self-concepts of academic ability of low-achieving students. In addition to being below the mean for their class on grade-point average, these low achievers had to score below the mean on self-concept of ability and have parents who were perceived by the students as holding low (below the mean) images of the students' ability. Of the low achievers who met these requirements, 30 were randomly assigned to an experimental group for individual counseling attempts to raise their self-concepts and 30 were assigned to a control group. No placebo group was used in the counselor experiment due to the nature of the counseling treatment.

Major Variables and Instrumentation

In the two previous phases of this study, Cooperative Research Projects No. 845 and No. 1636, the following constructs and scales were developed.

Self-Concept

General self-concept of academic ability refers to the evaluating definitions which an individual holds of himself in respect to his ability to achieve in academic tasks in general as compared with others in his school class. This definition of self-concept is in accord with Mead's definition of the self as involving awareness and articulation of programs of action for self as a social object.[78]

General self-concept of ability is operationally defined as the sum of scored responses of a subject to the Michigan State General Self-Concept of Ability Scale, hereafter referred to as "SCA." (See Appendix A) This scale of eight multiple choice items was developed under U.S.O.E. Cooperative Research Project No. 845.[79] Each item is scored from 5 to 1 with the higher self-concept alternatives receiving the higher values. In keeping with our definition of general self-concept of academic ability, each item asks the student to compare himself with others in his social system on the dimension of academic competency.

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[78] See Chapter I for a more complete statement.

[79] Brookover, Paterson, and Thomas, op. cit.

Reliability of the SCA Scale[80]. -- The reliability coefficients listed in Table 2.1 are higher than those typically reported for attitude tests. It should be emphasized, however, that the instrument is used and designed for the study of groups and not for the drawing of individual comparisons.

TABLE 2.1
HOYT'S ANALYSIS OF VARIANCE RELIABILITY COEFFICIENTS FOR GENERAL SELF-CONCEPT OF ACADEMIC ABILITY SCALE; GRADES 7-12 LONGITUDINAL STUDY

Grade	Male	Female	Combined
7	.820 N=513	.770 N=537	- - N=1050
8	.856 N=255	.872 N=306	.865 N=561
9	.872 N-255	.843 N=306	.860 N=561
10	.868 N=255	.833 N=306	.853 N=561
11	.871 N=255	.822 N=306	.852 N=561
12	.880 N=255	.849 N=306	.864 N=561

Student Perceptions of the Evaluation of Others

In order to analyze the self-other relationship, i.e., to determine the effects of a student's perceptions of the evaluations of his academic ability by others on his self-concept of academic ability, three scales were constructed (Appendix B). Each was composed of multiple choice items and are referred to as:

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[80] See Part II Related Studies Chapter VII by Ann Paterson, and Chapter VIII, by Lee Joiner for further assessments of the reliability and validity of SCA.

1. Perceived Parental Evaluations of Ability (PPEV)
2. Perceived Friends' Evaluations of Ability (PFEV)
3. Perceived Teachers' Evaluation of Ability (PTEV)

Reliability of the PPEV, PFEV, and PTEV Scales. -- Hoyt's Analysis of Variance reliability coefficients are presented in Table 2.2. The reliabilities are highest for PTEV (ranging from .912 to .927) and about equal for the PPEV and PFEV scales (ranging from .755 to .880). These are adequate for group comparisons and are higher than those typically reported for attitude measures.

TABLE 2.2
HOYT'S ANALYSIS OF VARIANCE RELIABILITY COEFFICIENTS
FOR PERCEIVED EVALUATIONS OF ACADEMIC ABILITY SCALES,
GRADES 8-12 LONGITUDINAL STUDY

Grade	PPEV	PFEV	PTEV
8	.838	.755	.918
9	.846	.880	.927
10	.782	.869	.921
11	.828	.859	.921
12	.849	.871	.912

N = 561 combined males and females

Academic Achievement

Academic achievement was defined as the grade point average (A = 4, B = 3. . .) of four academic subject grades. English, mathematics, social studies, and science were used in the 7th, 8th, and 9th grades. Other academic subjects were used in the later years.

if the student was not enrolled in all of the above subjects. Physical education, music, art, and driver education grades were never included.

The reliability of grade point average for four subjects computed by Hoyt's analysis of variance was .91 for males and .93 for females in the seventh grade; .93 for males and .93 for females in the eighth grade. These were calculated on a random sample of 35 males and 35 females.

January grades were used for the analysis. It is important to note that the grades were obtained two to three months later than the questionnaire data since a time sequence order of influences was hypothesized.

One Year Stability of Major Variables

Pearson Product Moment Correlations on test-retest data were highest for SCA (.688 - .727) and GPA (.668 - .755). In Table 2.3 it can be seen that the lowest stability coefficients occurred for the PTEV scores. Because of the coming and going of teaching personnel within the school and because students change teachers or sets of teachers from year to year, lower stability coefficients would be anticipated. The students' perception of his teacher's evaluation differs from the 8th to the 9th grade. Greater stability in response to this scale is shown, however, by the time the student reaches the 12th grade.

TABLE 2.3
TEST-RETEST COEFFICIENTS OF STABILITY FOR THE SCA, PPEV, PFEV, AND PTEV SCALES OVER A 1 YEAR PERIOD LONGITUDINAL STUDY MALES AND FEMALES COMBINED

Period	SCA	PPEV	PFEV	PTEV	GPA
8-9	.724	.640	.518	.441	.755
9-10	.713	.696	.587	.453	.679
10-11	.727	.748	.635	.571	.684
11-12	.688	.762	.628	.601	.668

Stability of Responses on Major Variables and Characteristics of the Distributions

The means, standard deviations, skewness, and kurtosis values for each of the variables (grades 7-12) are located in Appendix D, Tables 2 through 6. Some observations based on the data in these Tables are as follows:

1. The means for SCA, PPEV, PFEV and PTEV are stable over time. No large shifts or systematic changes are apparent. This is true for both longitudinal and cross-sectional populations.
2. A slight downward trend in GPA for males in the longitudinal sample is noted. Females and males in the cross-sectional populations do not follow this pattern.
3. At every grade level, both male and female longitudinal populations show higher mean grade point averages than cross-sectional populations.

4. The longitudinal population shows higher mean SCA scores than the cross-sectional population at every year for both males and females.
5. Generally, skewness and kurtosis values for SCA and GPA indicate normal distributions.
6. Perceived evaluation mean scores are slightly though consistently higher for the longitudinal than for the cross-sectional populations. Means on PPEV and PFEV remain stable over time while longitudinal students show higher means on PTEV in the 8th, 9th, and 10th grades, falling to about the level of the cross-sectional population in grades 11 and 12. This change is more apparent with males than with females.
7. While not skewed, distributions PFEV and PTEV are extremely leptokurtic.

Significant Others

A list of general significant others and academically significant others was obtained by asking two open-ended questions: "There are many people who are important in our lives. In the space below, list the names of the people whom you feel are important in your life. Please indicate who each person is," and "There are many people who are concerned about how well young people do in school. In the space below, list the names of the people you feel are concerned about how well you do in school. Please indicate who each person is." (See Appendix C)

For the purposes of this report responses were coded according to the following categories:

Parent(s)
Age Level Relatives
Adult Relatives
Friends, Same Sex
Friends, Opposite Sex
Local Adults
Teachers in General
Other Academic Persons
Unclassified

Socio-Economic Status

Socio-economic status was determined by using the Duncan Scale where the occupation of the student's father (or whoever supports the family) was assigned a value ranging from 1 (lowest) to 100 (highest). The characteristics of this scale have been treated elsewhere.[81]

Intelligence

Group intelligence test scores were obtained for a major portion of the students in the 4th, 6th, 9th and 11th grades. Only the scores for the latter two testings are treated in this report. The California Test of Mental Maturity was used for this purpose.

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[81] See A. Reiss, Occupation and Social Status (Glencoe, Ill: Free Press, 1961).

Data Collection Procedures

In the Fall of 1960, the first questionnaire was administered to the seventh grade students in four Oldtown junior-high schools. During the fall of each succeeding year (1961, 1962, 1963, 1964, and 1965) the questionnaire was administered to the same class. The questionnaires were administered to the students in this class in each of the schools under the direction of the senior author and research assistants.

School grades were obtained in January of those years. The grades were given by the teachers from 2 to 3 months after the mass testing took place.

Idiosyncratic data was obtained for the experimental groups in addition to the material mentioned in this report. These data were treated in an earlier report.[82]

Data Analysis Procedures

Although many different kinds of analyses were conducted as part of the related studies only those methods used with the major longitudinal study will be mentioned here. Briefly:

1. Data were coded and punched on IBM cards, subsequent analyses being performed mainly by the CDC 3600 computer at the Michigan State University Computer Center.
2. Correlation coefficients, means, standard deviations, skewness, kurtosis, and monotonic trend patterns were

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[82] Brookover, LePere, _et_. _al_., (1965), _op_. _cit_.

calculated using the CDC 3600. The introduction of new programs permitting analysis of subjects on whom some data might be missing provided an opportunity to include many subjects who would normally have been eliminated from the analysis. As a result, there was a slight variation in the total number in the several analyses. A table of N's is provided in Appendix D, Table 1.

3. Correlations are based on raw scores.
4. Chi-square analyses were performed using stanine scores.

Association of Changes Over One and Two Year Periods

Chi-square analysis was conducted to determine whether changes on a variable (1) were associated with changes on another variable (2). Because of regression, concomitant changes of scores toward the high and low ends of the distribution are likely to occur. While in an earlier report all subjects were included in the change analysis, here only those who scored on the middle three stanines (4,5,6) on both variables for the base year from which the change was calculated were included. This procedure was an attempt to reduce the likelihood of type I error arising from regression effects. For example on the SCA-GPA analysis for association of changes from 8th to 10th grade, only those subjects who showed stanine scores of 4,5, and 6 in both variables in 8th grade were analyzed. These scores were so close to the center of the distribution that they were both relatively free to vary.

A change of one stanine was considered a change. Plus, zero, and minus changes were then cross-tabulated for the two variables. Chi-square values for the association of changes were calculated, as well as contingency coefficients.

Testing for Monotonic Trends Over Three Year Periods

By searching the data, the computer identified those subjects whose raw scores on variables of interest increased over three years, e.g., $7<8<9$ or decreased $7>8>9$. The non-parametric "L" test was used to determine whether the ranks on a hypothesized dependent variable conformed with the hypothesized ranking based on the empirical observation of changes in scores.[83] For example, all subjects whose SCA raw scores showed the following pattern: $7<8<9$ were identified. Then they were broken into random groups and the means for 7, 8, and 9 for each of their random groups on GPA were ranked. The test determined whether these overall rankings in GPA agreed with the SCA ranking; whether they were both systematically increasing or decreasing.

In a power comparison between the omnibus F test and the non-parametric L, the L proved more powerful when a prior hypothesis suggests an ordered relationship.[84]

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[83] Ellis B. Page, "Ordered Hypotheses for Multiple Treatment: A Significance Test for Linear Ranks," Journal of the American Statistical Association, LVIII (March, 1963), 216-230.

[84] Frederick Boersma, James DeJonge and Walter Stellwagen, "A Power Comparison of the F and L Tests," Psychological Review, LXXI (June, 1964), 503-513.

CHAPTER III

SIGNIFICANT OTHERS

The identification of the others with whom the actor associates in a significant manner is a relevant question in any social psychological analysis of human behavior. This is of particular consequence in the interaction theory which provides the frame of reference for this research. In order to test the hypothesized relation between self-concept of ability and the perceived evaluation of others, it is desirable to have something more than an _a prior_ assumption concerning the identification of relevant others in the social interaction of the subjects of our research.

Much of the sociological and educational literature involving adolescents assumes that the peers become the primary reference group[85] at this age level. Although it is seldom made explicit, Coleman and others imply that parents decline as a relevant point of reference as adolescents move into the high school system. It is important therefore to know whether or not such changes do in fact occur before we analyze the impact of the perceived evaluation of relevant others on self concept of ability. Data which give some evidence on the identification of what we label "significant others" were attained for each year, grades 7 through 12. These data were not obtained from all students in the 7th grade and therefore not available for all the longitudinal population. The analysis which follows is based on the responses given by the same students to two questions each year from 8th grade through the 12th grade.

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[85] James Coleman, _The Adolescent Society_, Glencoe, Ill., The Free Press, 1961.

Two questions were designed in such a manner that responses would provide identifications of persons who were significant referents for respondents.

Responses to these questions are labeled "General Significant Others" (GSO) and "Academic Significant Others (ASO)," respectively.

> "There were many people who are important in our lives. In the space below, list the NAMES of the people who you feel are important in YOUR life. Please indicate who each is."

and:

> "There are many people who are concerned about how well young people do in school. In the space below, list the Names of the people you feel are concerned about how well you do in school. Please indicate who each person is."

The data obtained from responses to these two questions over the five year period of the study provide the basis for testing several hypothesis and for answering certain specific questions about the significant others of adolescents. Although it was not the primary focus of our research, the importance of knowledge about the referents of young people and the assumptions made about adolescent society makes this analysis a major contribution of our research. It should be recognized, however, that the responses to the questions only identify the "others" who are "important" to the student and those "concerned" about their work in school. In neither instance did we ask for a ranking of relative importance or concern.

Objectives of the Analysis

Our previous reports[86] revealed the distribution of responses to the significant other questions in grades seven through ten. It was clear that parents were named in response to both questions by almost all students. The persistance or change in this and other patterns of significant others identification through the high school years is the first purpose of this analysis. The literature concerning adolescents suggests the hypotheses:

3.1 The proportion of students naming parents as important in their lives and concerned about how well they do in school will decline as the students progress through the high school years.

3.2 The proportion of students naming peers as the "significant others" will increase as the students progress through high school.

In addition to examining the changes in the persons identified as significant others, we also inquired if some of these changes are related to changes in the self-concept of ability, school achievement, and aspirations of the students. Since parents were consistantly named at each grade level by nearly all students, it was not possible to determine if changes in the identification of parents were related to changes in these variables. Similarly, changes in the identification of friends were so few that such an analysis was impossible. There were, however, sufficient changes from one grade level to another among students who mentioned teachers, to permit us to explore the relation between these changes and self-concept, achievement, and educational aspirations.

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[86] Brookover, Paterson & Thomas, (1962) op. cit., and Brookover, LaPere, Hamachek, Thomas & Erickson (1965), op. cit.

Findings

The proportions of males and females in the longitudinal population who identified various categories of others as "important in their lives" and as "concerned about how well they (the students) did in school" at each grade level are shown in Table 3.1 and 3.2. The findings concerning several categories are summarized below.

Parents

1. Parents were consistently named by 93% to 97% of the boys and 96% to 99% of the girls during grades 8 through 12, in response to the question asking "who are important in your life."
2. Similarly, parents were consistantly named by 95% to 97% of the boys and 97% of the girls at each grade level, 8 through 12, in response to the

TABLE 3.1
PERCENTAGE OF THE SAME STUDENTS AT EACH GRADE LEVEL
WHO NAME AT LEAST ONE PERSON FROM EACH OF THE FOLLOWING CATEGORIES
OF SIGNIFICANT OTHERS AS BEING IMPORTANT IN THEIR LIVES

Males = 225 and Females = 306

Longitudinal Study

Categories of Others "General Significant Others"	Sex	8th Grade %	9th Grade %	10th Grade %	11th Grade %	12th Grade %
Parent (s):	Males	97	96	96	95	93
	Females	99	98	96	98	98
Age Level Relatives:	Males	62	60	46	52	57
	Females	76	75	70	78	75
Adult Relatives:	Males	38	40	27	35	31
	Females	55	57	47	53	52
Friends, Same Sex:	Males	44	48	26	33	27
	Females	54	68	46	62	53
Friends, Opposite Sex:	Males	15	18	14	22	26
	Females	30	32	33	57	25
Local Adults:	Males	19	20	15	20	24
	Females	27	32	23	23	16
Teachers in General:	Males	38	37	24	20	18
	Females	34	34	12	16	16
Other Academic Persons: (Counselors, coaches, principals)	Males	9	9	6	13	15
	Females	12	6	3	7	7
Unclassified: (e.g. God, famous people, dogs, me, etc.)	Males	28	22	18	25	16
	Females	12	17	13	15	12

TABLE 3.2
PERCENTAGE OF THE SAME STUDENTS AT EACH GRADE LEVEL WHO NAME AT LEAST ONE PERSON FROM EACH OF THE FOLLOWING CATEGORIES OF SIGNIFICANT OTHERS AS BEING CONCERNED ABOUT HOW WELL THEY DO IN SCHOOL

Males = 255 and Females = 306

Longitudinal Study

Categories of Others "Academic Significant Others"	Sex	8th Grade %	9th Grade %	10th Grade %	11th Grade %	12th Grade %
Parent(s):	Males	96	97	96	95	96
	Females	99	99	98	98	97
Age Level Relatives:	Males	19	30	20	26	29
	Females	24	38	29	42	45
Adult Relatives:	Males	30	37	31	29	27
	Females	45	55	41	52	31
Friends, Same Sex:	Males	5	8	6	10	11
	Females	11	21	17	30	39
Friends, Opposite Sex:	Males	4	7	5	13	21
	Females	4	9	16	31	16
Local Adults:	Males	4	5	5	7	10
	Females	6	11	7	14	19
Teachers in General:	Males	60	53	44	34	26
	Females	63	50	35	35	29
Other Academic Persons: (Counselors, coaches, principals)	Males	29	27	33	33	18
	Females	37	33	33	33	32
Unclassified: (e.g. God, famous people, dogs, me, etc.)	Males	35	23	24	30	25
	Females	37	30	32	22	25

question asking students to identify who is "concerned about how well you do in school."

It is clear from these data that there was no significant change in the proportion of either male or female students identifying one or both parents in response to either of the significant other questions. Furthermore, nearly all students named a parent or parents each year in response to both questions and parents were usually named first. Hypothesis 3.1 therefore is rejected.

Friends

1. There was a small increase in the proportion of boys who identified friends of the opposite sex as important in their lives during the five year period from 8th to 12th grade. The proportion of these boys who named friends of the same sex in response to this question declined from a high of 48% in the 9th grade to 27% in the 12th grade.
2. A consistantly higher proportion of the females than the males named friends of both the same and opposite sex as important in their lives. There is, however, no consistant trend in the proportion of girls naming either category of friends as important over the five year period.
3. The proportion of these boys who identified friends of the same and opposite sex as concerned about how well the boys did in school increased from

the 8th to the 12th grade. The highest combined proportion naming friends, however, is only 33% occuring in the 12th grade.

4. The proportion of females identifying girl friends as academically significant others is consistantly higher than the proportion of males naming boy friends in response to this question.
5. The proportion of females naming boy and girl friends as being concerned about how well they do in school increases over the five years, but the trend is not consistant in either category. The highest combined proportion of boy and girl friends, 61%, is named in the 12th grade.

The evidence available from this population of adolescent students indicates that girls are more likely than boys to identify friends as significant others, but the difference in proportion is neither large nor consistant over the five years.

The findings also give some support for the hypothesized increase (hypothesis 3.2) in the proportion of students identifying peers as significant others. A greater proportion of both males and females name friends of one or both sexes as important in their lives than name friends of either or both sexes as concerned about how well they do in school. This suggests that the peer group may be more relevant in areas of behavior other than school performance. Although the proportion who name peers as academically significant others increases somewhat over the years, it is never as high as the proportion identifying peers as general significant others. The consistantly higher proportion naming parents than peers as academically significant others indicates that parents are more likely to be relevant others in the area of academic behavior than are peers. Among those students for whom peers are academically significant others, many may be influenced by peers as much or more than by parents.

Teachers and Other Academic Personnel

1. There was a sharp decrease in proportion of both males and females who indicated teachers as academically significant others. The proportion of females declined from 63% to 29%, and the proportion of males naming teachers declined from 60% to 26% during the five year period.
2. There was a similar decrease in proportion of males and females who identified teachers as general significant others. This proportion declined from 38% to 18% for males, and 34% to 16% for females over the five year period.
3. At each grade level a slightly larger proportion of males than females identified at least one teacher important in their lives (general significant other).
4. There was no consistant difference in the proportions of males and females who identified one or

more teachers as concerned about how well they did in school (academically significant other).

5. Generally, a slightly larger proportion of males than females identified other academic personnel (counselors, coaches, principals, etc) as important in their lives, but the proportion is 15% or less for each year.
6. The proportion of students both males and females, who name other academic personnel as concerned with how well they do in school is consistantly greater than the proportion who name such persons as important in their lives.
7. There are no consistant trends in the proportion naming other academic personnel as general or academically significant others over the five years.

These data indicate that teachers and other academic personnel are more likely to be identified as significant in the area of school performance than in the more general area considered when responding to the question "who is important in your life." The proportion of boys naming school personnel of both categories in response to the latter question is slightly higher than the proportion of girls doing so. Although there is only slight variation in the proportion naming other academic personnel, the sharp decline in the proportion naming teachers in response to both questions suggest that the probability that school personnel will be significant to students decreases during the secondary school years. At no time are they significant to as high a proportion of students as parents are, but again it must be recognized that teachers may be very significant for some students, particularly in the academic area of behavior.

Other Relatives

1. Approximately one-third of the boys and one-half of the girls named one or more adult relative (excluding parents) as important in their lives. These proportions varied somewhat from year to year, but there was no consistant trend among either the boys or the girls.
2. Approximately one-half of the boys and three-fourths of the girls named relatives of their own age level as important in their lives. These proportions vary slightly, but show no consistant trend.
3. Adult relatives are identified as academically significant others by a slightly larger proportion of the girls (31-55%) than the boys (27-37%), but there is no consistant pattern of change among either the boys or the girls.
4. Relatives of the same age level are also identified as academically significant others by a larger proportion of the girls (24-45%) than the boys (19-29%), and boy proportions increase over the

five year period.

When the evidence indicating that other relatives are significant others for large proportions of secondary school students is combined with the almost universal identification of parents as significant others, the importance of family members in academic behavior as well as other areas of behavior is clearly indicated. Although others may be significant to these students, the probability that two or more members of the family are important to any one of them is certainly high.

Local Adults

A significant proportion of the students (15-32%) mentioned some adult not previously classified as important in their lives and a smaller proportion (4-19%) identified such a person as concerned about how well the student does in school. These adults have varied relationships with the students. Included among these adults are neighbors, ministers, scout leaders, choir directors, and various other persons. No one type accounts for a large proportion.

Relation of Changes in Significant Others and Academic Variables

Although no theoretical basis was developed for hypothesizing that changes in the persons identified as significant others would be related to changes in self-concept of ability, grade point average, or educational aspiration, we proposed to explore this possibility when we undertook the longitudinal study. More relevant than the persons identified as significant is the perceived evaluations and expectations held by whoever is significant.

It has been suggested that students for whom teachers become significant when they previously were not may change their school-related behavior. This suggestion assumes that teachers have particular relevance for academic achievement and related behavior. We have therefore analyzed the data to determine if students who named teachers as significant others after previously not doing so change concomitantly in self-concept of ability, grade point average, and level of educational aspiration. The possibility of reverse changes was also examined.

Our previous analysis and that reported in Chapter IV indicate that changes in perceived evaluations were more likely to produce changes in self-concept of ability over a two year period than over a one year period. For this reason, changes over a two year period, 8th to 10th, 9th to 11th, and 10th to 12th grades, were used. In order to determine if changes in SCA, GPA, and level of educational aspiration were associated with changes in the naming of teachers as significant others over 2 year periods a chi-square procedure was used. Change from not mention to mention was coded plus and change from mention to not mention was coded minus. Cross-tabulated against this classification were plus, zero, and minus changes of one stanine or more on SCA, GPA, and educational aspirations. Chi-square values were calculated for each variable, grades 8-10, 9-11, and 10-12, for a total of nine analyses.

In none of the analyses were changes in the identification of teachers as significant others related to changes in self-concept of ability, school achievement, or level of educational aspiration. Therefore, students who named a teacher as significant in the 8th grade but did not in the 10th grade were no more likely to have raised or lowered their grades during this period than students who had not named teachers in the 8th grade but did so in the 10th grade. The same conclusions hold for self-concept and educational aspiration as well as grade point average. And the same results were found for each two year period.

We had intended to examine whether or not students who ceased to name their parents as significant others changed in academic performance, aspirations, and self-concept, but so few students omitted parents as significant others that it was impossible to explore this question.

Summary

Parents, more than any other category of persons, were identified on open-ended questions administered in a school setting as both "important in their lives" and "concerned about how well they (the students) do in school." Although we have no data on the relative influence of particular significant others, the consistant naming of parents by nearly all the students gives no support to the hypothesis that parents' influence declines in the adolescent years. Rather, our evidence suggests that parents continue to have great influence on their childrens' academic behavior. Further evidence on this question is presented in Chapter IV and Chapter IX.

The proportion of students identifying friends as academically significant others increases in the later school years. This trend indicates that peers are more likely to be significant referents in school behavior as the students advance in high school.

The proportion of students who named teachers as general or academically significant others decreased somewhat over the years. Although some students named teachers in later years who did not do so earlier, such changes in the identification of teachers as significant others were not related to changes in self-concept of ability, grade point average, or level of educational aspirations.

The almost universal identification of parents and the high proportions of students naming other relatives as significant others emphasizes the importance of the family as a reference group for both school performance and other areas of behavior. However, it should not be concluded from our data that non-family members are unimportant. Among those for whom teachers, friends or other persons are significant, such persons may have as great or greater influence than parents or other family members.

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CHAPTER IV

PERCEIVED EVALUATIONS, SELF-CONCEPT AND ACHIEVEMENT

Throughout the period of the research reported in this and previous reports we have been concerned with testing hypotheses relevant to the social-psychological theory of school learning stated in chapter one. The major hypotheses tested and the results of our analysis are presented in this chapter. The first section deals with the relationship between general self-concept of academic ability and achievement (GPA); the second section concerns perceived evaluation of others (parents, friends, and teachers) as a source of self-conceptions and the relationships among these variables; and finally self-concept of academic ability as a variable intervening between the perceived evaluations of others and academic achievement (GPA).

The Major Hypotheses

1. Self-concept of academic ability is associated with academic achievement at each grade level.
2. Changes in self-concept of academic ability are associated with parallel change in academic achievement.

3. Self-concept of academic ability is a necessary but not sufficient condition for the occurance of academic achievement.
4. Student perceptions of the evaluations of their academic ability by others (parents, friends, and teachers) are associated with self-concept of academic ability at each grade level.
5. Changes in the perceived evaluations of the students' academic ability by others (parents, friends, and teachers) are associated with parallel changes in self-concept of academic ability.

On the assumption that self-concept of ability is an intervening variable between students' perceptions of the evaluations of their academic ability by others and academic achievement, the following hypotheses are also to be tested:

6. The associations between perceived evaluations by others and self-concept of academic ability are greater than the associations between self-concept of academic ability and achievement.
7. The associations between self-concept of academic ability and achievement are greater than the associations between perceived evaluations and achievement.
8. The association of changes in perceived evaluations with changes in self-concept of academic ability is greater than the association of perceived evaluation with changes in achievement.

9. The association of changes in self-concept of academic ability with changes in achievement is greater than the association of changes in perceived evaluations with changes in achievement.

Also, several questions are posed involving competing variables:

1. To what extent does variation or change in socio-economic status, measured intelligence or general self-esteem account for associations between SCA and GPA?
2. Are changes in achievement level associated with changes in socio-economic status and measured intelligence?
3. To what extent does variation in socio-economic status and measured intelligence account for associations between perceived evaluations and self-concept of academic ability?
4. Do socio-economic status level, measured intelligence level, or school attended affect changes in self-concept of academic ability?
5. Are changes in self-concept of ability associated with changes in socio-economic status and measured intelligence?

Relation of Self-Concept of Academic Ability to Achievement

Basic to the theory which we have sought to test are the three hypotheses concerned with the relation of self-concept of ability and school achievement. The results of the analysis relevant to these hypotheses are presented in order.

Hypothesis One: Self-concept of academic ability is associated with academic achievement at each grade level.

The correlations shown in table 4.1 are all positive and statistically significant beyond the .01 level. In grades 7, 8, 9, 10, and 11 the correlations for males appear larger than those for females. While a drop in correlation from the 11th to 12th grade of .57 to .49 is noted in the combined data, and correlations for males drops from .61 to .48, females show little change between those years. One can only speculate concerning this differential shift. In general, the relationship between SCA and GPA as summarized in correlational results shows consistency over the high school years. And in 5 out of 6 instances the relationship is stronger among males.

TABLE 4.1
PEARSON PRODUCT MOMENT CORRELATIONS
BETWEEN SELF-CONCEPT OF ACADEMIC ABILITY
AND GRADE POINT AVERAGE
AMONG MALES AND FEMALES
IN THE LONGITUDINAL POPULATION
GRADES 7-12

Grade	Combined N = Approx. 562	Males N = Approx. 255	Females N = Approx. 307
7th	.58	.62	.55
8th	.55	.63	.52
9th	.56	.62	.55
10th	.53	.62	.53
11th	.57	.61	.59
12th	.49	.48	.58

All r's are significant beyond .01 level.

Hypothesis Two: Change in self-concept of academic ability is associated with parallel change in academic achievement.

In order to test the above hypothesis changes were tabulated for SCA and GPA over one and two year periods. As indicated in Chapter II this analysis is based on students in the middle three stanines on both variables in the first year in order to control for regression effects. Tables 4.2 and 4.3 illustrate the direction, magnitude, and cell-distributions of these change analyses summarized in Table 4.4.

TABLE 4.2
CHANGES IN SELF-CONCEPT OF ACADEMIC ABILITY
BY CHANGES IN GRADE POINT AVERAGE
FROM GRADE 8 TO 9
AMONG MALE AND FEMALE STUDENTS
IN MIDDLE STANINES GRADE 8

Changes		Changes in GPA 8th and 9th grade			Totals
		-	0	+	
	+	38 A (41.92)	16 B (17.41)	29 C (23.16)	83
Changes in Self-Concept 8th to 9th grade	0	37 D (36.81)	12 E (14.85)	23 F (20.34)	72
	-	39 G (35.27)	19 H (14.23)	11 I (19.49)	69
Totals		114	47	63	224

Expected frequences in parenthesis
$X^2 = 8.64$ $.10 > p > .05$

TABLE 4.3
CHANGES IN SELF-CONCEPT OF ACADEMIC ABILITY
BY CHANGES IN GRADE POINT AVERAGE
BETWEEN GRADES 8 AND 10
AMONG MALE AND FEMALE STUDENTS
IN MIDDLE STANINES GRADE 8

Changes		Changes in GPA 8th to 10th grade			
		-	0	+	Totals
Changes in Self-Concept 8th to 10th grade	+	34 A (41.93)	22 B (25.25)	45 C (33.82)	62
	0	24 D (25.33)	18 E (15.25)	19 F (20.42)	61
	-	35 G (25.74)	16 H (15.50)	11 I (20.76)	101
Totals		93	56	75	224

Expected frequences in parenthesis
$X^2 = 14.21$ $p < 01$

The observed frequencies in cells C and G of these tables should exceed the expected frequencies and the observed frequencies in cells A and I should be less than the expected frequencies if the hypotheses of associated changes is supported.

The findings summarized in Table 4.4 support the general hypothesis that changes in self-concept of academic ability are associated with changes in GPA. Although the deviations of observed from expected frequencies are generally in the hypothesized direction, in three instances change over one year periods were not significant at the .05 level. However, in every instance of the test concomitant changes exceeded expected frequencies and

TABLE 4.4
SUMMARY OF ASSOCIATIONS BETWEEN CHANGES IN SELF-CONCEPT OF ABILITY AND GRADE POINT AVERAGE OVER ONE AND TWO YEAR PERIOD DURING 8TH TO 12TH GRADES AMONG STUDENTS IN MIDDLE STANINES OF BOTH VARIABLES IN FIRST YEAR

Change Period	X^2	N	Probability less than	Direction of Relation
8-9	8.64	224	.10	Positive
8-10	14.21	224	.05	"
9-10	7.98	167	.10	"
9-11	22.57	167	.05	"
10-11	21.82	175	.05	"
10-12	29.95	175	.05	"
11-12	5.86	168	.25	-

contrary changes appeared less often than would be expected by chance alone. Associated changes in SCA and GPA are stronger over the 2 year periods than over 1 year periods. Apparently time is a factor in the degree of concomitant change shown by these two variables.

Another test of the hypothesis that changes in SCA are accompanied by similar changes in GPA was undertaken using trends over three year periods. In order to accomplish this, data on all longitudinal subjects were examined for three year monotonic trends on SCA. Any subject whose raw score in SCA showed a constant increase or decrease over a three year period was identified, and his GPA's noted. These subjects were pooled and divided into random groups of four. Then GPA's were averaged within each random group and ranked over the three years. It was hypothesized that a decreasing SCA score-pattern from grade 7 through grade 9, for example, should show a corresponding trend in ranked GPA's over the random groups. Data in Table.4.5 summarizes these results for increasing and decreasing SCA scores over all three year periods (7-9, 8-10, 9-11, 10-12).

TABLE 4.5
SUMMARY OF "L" TEST RESULTS FOR GPA
WHEN SCA SCORES SHOW ASCENDING OR DESCENDING MONOTONICITY
OVER 3 YEAR PERIODS

Hypothesized Rankings	Basis for Hypothesized Ranking	Assumed Dependent Variable	No. of Random Groups	Critical Value of L p .05	Observed L Value
7<8<9	SCA Ascending	GPA	20	251	252
8<9<10	SCA Ascending	GPA	14	178	163 NS
9<10<11	SCA Ascending	GPA	10	125	139
10<11<12	SCA Ascending	GPA	14	178	180
7>8>9	SCA Descending	GPA	10	128	128
8>9>10	SCA Descending	GPA	20	251	263
9>10>11	SCA Descending	GPA	24	300	328
10>11>12	SCA Descending	GPA	29	361	242 NS

In 3 out of 4 tests, an ascending trend in SCA was paralleled ($p < .05$) by an ascending trend in GPA's. This technique makes no test of the magnitude of these trends nor size of interval between ranks. Only the likelihood of a hypothesized systematic ordering as opposed to a random ordering is tested. Similarly, in 3 out of 4 tests a GPA ranking fits a hypothesized descending monotonic trend based on SCA score patterns. On the basis of this analysis there appears to be no difference between increasing or decreasing trends in fall SCA scores as far as the likelihood of their being matched by similar trends in winter GPA's.

These analyses provide substantial support for the hypothesis that changes in SCA are associated with parallel changes in GPA. Although only one out of four of the one year tests of association of changes in SCA and GPA were significant at the .05 level or less (Table 4.4) examination of the data indicates that the direction of the deviation of observed from expected frequencies was consistent with the hypothesis. Over 2 years, a similar analysis yielded significant associations at the .05 probability level (Table 4.4) between changes in SCA and GPA in 3 out of 3 tests. Eight tests for trends in GPA over 3 years paralleling ascending and descending monotonic trends in SCA yielded 6 tests significant at the .05 level, and one test with a probability beyond the .10 level. These findings clearly support hypothesis two.

Hypothesis three: Self-concept of academic ability is a necessary but not a sufficient condition for the occurance of academic achievement.

The basic theory presented in Chapter I postulates that an adequate self-concept of ability is a necessary but not sufficient condition for high school achievement. In order to test this the students in the longitudinal population were classified in two categories of high and low self-concept and two categories of high and low grade point average.

TABLE 4.6
SELF-CONCEPT OF ABILITY BY GRADE POINT AVERAGE IN STANINE CATEGORIES DEMONSTRATING THE NECESSARY BUT NOT SUFFICIENT RELATIONSHIP BETWEEN VARIABLES IN GRADES 8 THROUGH 12 AMONG LONGITUDINAL POPULATION

Self-Concept of Ability		Grade Point Average														
		Low Stanines 1-6					High Stanines 7-9					Total				
	Grade	8	9	10	11	12	8	9	10	11	12	8	9	10	11	12
High Stanines 5-9	8	222					92					314				
	9		200					123					323			
	10			229					127					356		
	11				206					136					342	
	12					218					107					236
Low Stanines 1-4	8	230					15*					245				
	9		220					16*					236			
	10			198					7*					205		
	11				204					15*					219	
	12					226					10*					236
Total		452	420	427	410	444	107	139	134	151	117	559	559	561	561	561

*Hypothesized frequency in this cell with no measurement error is zero

The cutting point for SCA was empirically determined using the eighth grade data. This criteria, stanines 1-4 vs. stanines 5-9, was then used throughout the analysis for later years. If a 1-3 stanine cutting point had been used, there would have been zero subjects scoring low on SCA and high on GPA.

Table 4.6 shows the tabulations of high and low SCA by high and low GPA. At each grade level high SCA scores (stanines 5-9) appear in conjunction with both high (stanines 7-9) and low (stanines 1-6) GPA's. Low GPA's are nearly equally distributed among those with high or low self concepts. However, less than 7% of the students who exhibited low SCA's (stanines 1-4) at any grade level attained subsequent high grade-point averages (stanines 7-9).

In summary, only rarely did a student have a low self concept of academic ability in the fall and high academic grades at the end of the semester. On the other hand, a large proportion of students who scored high on SCA had comparatively low GPA. The necessary but not sufficient relationship of SCA to GPA is therefore supported by this analysis.

Competing Variables Accounting for Achievement

Both social-economic status and measured intelligence are long noted correlates of grade-point average. We have therefore examined the effect of controlling for each of these variables on the relation between self-concept of ability and grade point average. Similar analysis has been made to determine the effect of controlling for self-concept of ability on the correlation between each of these competing variables and grade point average.

Socio-Economic Status

First we examine the effect of controlling for socio-economic status on the correlation between self-concept of ability and grade point average and the control of SCA on the correlation between SES and GPA.

Table 4.7 presents first-order partial correlations controlling for SES in the SCA-GPA relationship and controlling for SCA in the SES-GPA relationship. Control for variation in SES reduced the correlation between SCA and GPA from .55 to .52 in the 8th grade; .56 to .53 in the 9th grade; .53 to .52 in the 10th grade; .57 to .55 in the 11th grade; and .49 to .47 in the 12th grade. These very small reductions indicate that variation in SES accounts for very little, if any, of the SCA-GPA relationship.

Interestingly enough, control for variation in SCA substantially reduces the SES-GPA relationship. By controlling for SCA the SES-GPA relationship is reduced from .25 to .14 in the 8th grade; .26 to .15 in the 9th grade; .17 to .07 in the 10th grade; and .18 to .09 in the 11th grade; and .17 to .07 in the 12th grade.

As a further test of the effect of SES on the grade point average we have examined whether or not changes in academic achievement (GPA) are associated with changes in socio-economic status. The results of the first analysis directed toward this question are summarized in Table 4.8, page 98. Since none of the chi-square values are significant at the .05 level we cannot justify

TABLE 4.7
CORRELATIONS BETWEEN SELF-CONCEPT OF ACADEMIC ABILITY GRADE POINT AVERAGE AND SOCIO-ECONOMIC STATUS IN GRADES 8 THROUGH 12 AMONG THE LONGITUDINAL POPULATION

Variables

1. Self-Concept of Ability (Fall)
2. Grade Point Average (Winter)
3. Socio-economic Status (Fall)

N = 562 Males and Females Combined

	Zero Order	First Order
8th Grade	$r_{12} = .55$	$r_{12.3} = .52$
	$r_{13} = .26$	
	$r_{23} = .25$	$r_{23.1} = .14$
9th Grade	$r_{12} = .56$	$r_{12.3} = .53$
	$r_{13} = .23$	
	$r_{23} = .26$	$r_{23.1} = .15$
10th Grade	$r_{12} = .53$	$r_{12.3} = .52$
	$r_{13} = .21$	
	$r_{23} = .18$	$r_{23.1} = .07$
11th Grade	$r_{12} = .57$	$r_{12.3} = .55$
	$r_{13} = .23$	
	$r_{23} = .18$	$r_{23.1} = .09$
12th Grade	$r_{12} = .49$	$r_{12.3} = .47$
	$r_{13} = .19$	
	$r_{23} = .17$	$r_{23.1} = .07$

any contention of a direct relationship between these variables.

TABLE 4.8
SUMMARY OF CHI-SQUARE ANALYSIS OF CHANGES IN SOCIO-ECONOMIC STATUS
AND GRADE POINT AVERAGE OVER ONE AND TWO YEAR PERIODS
AMONG STUDENTS IN MIDDLE STANINES
ON BOTH VARIABLES IN FIRST YEAR

Change Period	X^2	N	Probability
8-9	.77	125	NS
8-10	3.44	125	NS
9-10	4.97	113	NS
9-11	3.13	113	NS
10-11	.06	104	NS
10-12	1.23	104	NS
11-12	4.98	93	NS

A test for parallel trends on SES and GPA over varying time periods is summarized in Table 4.9. The method of this analysis is the same as that used with SCA and GPA trends. Subjects who showed ascending and descending monotonic trends in SES over 3 year periods were identified. Ascending or descending monotonicity was determined by ranking raw scores for random groups on SES without regard to magnitude of difference. Subjects who showed three consecutive years where $SES_x1 > SES_x2 > SES_x3$ or $SES_x1 < SES_x2 < SES_x3$ were considered to show a trend on SES. This pool of subjects was then broken into random groups whose GPA's were calculated for the 3 years and ranked. The L test was used to determine whether overall GPA rankings fit the hypothesized ranking. Table 4.9 shows that in none of six tests of three consecutive year trends in SES is there a consecutive 3 year trend in GPA.

Similarly Table 4.9 shows that SES trends, when defined with scores separated by one year, (Grades 8, 10, and 12) were not accompanied by paralleled trends in GPA.

TABLE 4.9
SUMMARY TABLE OF L TEST RESULTS FOR GPA
WHEN SES SCORES SHOW
ASCENDING OR DESCENDING MONOTONICITY
OVER 3 YEAR PERIODS

Basis for Rankings Grade Level Trends in SES	Dependent Variable	No. Random Application	Critical L Value p.05	Observed L Value
$8<9<10$	GPA	10	125	108 NS
$9<10<11$	GPA	6	79	76 NS
$10<11<12$	GPA	6	79	68 NS
$8>9>10$	GPA	8	104	93 NS
$9>10>11$	GPA	8	104	87 NS
$10>11>12$	GPA	16	202	199 NS
$8<10<12$	GPA	9	116	122 NS
$8>10>12$	GPA	11	141	123 NS

The evidence from these analyses of the relation of reported change in socio-economic status and grade point average does not justify any conclusion of relationship.

Measured Intelligence

Since measured intelligence has been found to be associated with both grade point average and self-concept of ability, partial correlations were calculated to control for the effect of IQ variation on the SCA-GPA relationship. This has been done at grade levels where intelligence test scores were available (9 and 11). As shown in Table 4.10, controlling for IQ results in a decrease in the SCA-GPA relationship in grade 9 from .57 to .41. However, an even more substantial reduction from .50 to .31 is noted when we control for variation in SCA in the IQ-GPA relationship. In the 11th grade control for IQ in the SCA-GPA relationship yields a .57 to .39 decrease, but control for SCA in the IQ-GPA relationship results in a .52 to .28 decrease. In general, control for IQ in the SCA-GPA relationship suggests that IQ has less influence on the SCA-GPA relationship than SCA does on the IQ-GPA relationship.

TABLE 4.10
CORRELATION BETWEEN SELF-CONCEPT OF ACADEMIC ABILITY, GRADE POINT AVERAGE AND MEASURED INTELLIGENCE
GRADES 9 AND 11

Variable
1. Self-concept ability (Fall)
2. Grade point average (Winter)
3. Measured intelligence (Fall)

	Zero	First order
Grade 9 N = 421	$r_{12} = .57$	$r_{12.3} = .41$
	$r_{13} = .53$	
	$r_{23} = .50$	$r_{23.1} = .31$
Grade 11 N = 325	$r_{12} = .57$	$r_{12.3} = .39$
	$r_{13} = .60$	
	$r_{23} = .52$	$r_{23.1} = .28$

Since IQ measures for two grade levels were available for some subjects, a change analysis was conducted using IQ and GPA data with a fluctuation of one stanine or more being defined as change. The data in Table 4.11 show that while deviations of observed from expected frequencies are generally in the direction supportive of a hypothesis of concomitant change in these variables, the overall chi-square value is not statistically significant at the .05 level.

TABLE 4.11
CHI-SQUARE ANALYSIS OF ASSOCIATION
BETWEEN CHANGES IN MEASURED INTELLIGENCE AND GRADE POINT AVERAGE
FROM GRADES 9 TO 11,
AMONG MALE AND FEMALE STUDENTS
IN THREE MIDDLE STANINE
ON BOTH VARIABLES IN 9TH GRADE

Changes		Changes in GPA 9th to 11th Grades -	0	+	Totals
Changes in IQ 9th to 11th	+	7	3	11	21
	0	7	3	10	20
	-	13	11	6	30
		27	17	27	71

$X^2 = 8.37$ $P > .05$ NS

Since we have noted above that change in self-concept of ability is associated with change in grade point average over a two year period, it appears that self-concept may be more functional in affecting grade point average than measured intelligence.

General Self-Concept

As indicated in Chapter I we have assumed that a specific aspect of self-concept involved in academic ability was more related to academic achievement than more global self-concepts. We have from time to time tested this assumption using other self-concept measures. In the fall of the 12th grade we used Rosenberg's[87] self-esteem scale as the multifactor or general self-concept measure.

Correlations between Rosenberg's measure of "self-esteem," self-concept of academic ability and grade point average are shown in Table 4.12. An already low correlation (.20) between

TABLE 4.12
CORRELATION BETWEEN SELF-ESTEEM SELF-CONCEPT
OF ACADEMIC ABILITY GRADE POINT AVERAGE
AMONG LONGITUDINAL POPULATION
IN GRADE 12

Variable	N = 534
1. 12th Grade SCA (Fall) 2. 12th Grade GPA (Winter) 3. 12th Grade Measure of "Self Esteem" (Fall)	Males & Females Combined

Zero order	First order
$r_{12} = .49$	$r_{12.3} = .46$
$r_{13} = .31$	
$r_{23} = .20$	$r_{13.2} = .06$

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[87] Morris Rosenberg, Society and The Adolescent Self-Image, Princeton, N.J., Princeton University Press, 1965.

self-esteem and GPA is reduced to near zero (.06) when variation in SCA is controlled while only a small reduction in correlation (.49 to .46) appears when variation in the "self-esteem" measure is controlled in the SCA-GPA relationship. It is clear from this analysis that self-concept of ability is more highly correlated with achievement than general self-esteem. In fact the latter shares little variation with GPA when SCA is controlled.

Summary

1. The use of partial correlation as a means of statistically controlling for variations in SES in the SCA-GPA relationship yields very slight reductions at each grade level.

2. Utilization of same method, but controlling for variation in SCA, reduces the SES-GPA relationship to near zero at each grade level.

3. Control for variation in "self-esteem" has little effect upon the SCA-GPA correlation while control for SCA in the "Self-esteem" GPA relationship yields a negligible correlation of .06.

4. Control for variation in SCA resulted in larger reductions in the relationship between IQ and GPA than did control for IQ in the SCA-GPA relationship.

5. Changes in SES are unrelated to changes in GPA over one, two, three, or five year periods.

6. Changes in IQ between the 9th and 11th grades are not associated with changes in GPA between those grades.

Relation of Perceived Evaluations to Self-Concept of Academic Ability

Basic to the social psychological theory underlying this research is the relation between the evaluations of others and self-concept of ability. We have therefore tested the major hypothesis involved and examined the effect of other variables on this relationship.

Hypothesis Four: Student's perceptions of the evaluations of their academic ability by others (parents, friends, and teachers) are associated with self-concepts of academic ability at each grade level.

Data in Table 4.13 show that for the combined group the yearly correlations between perceived parental evaluations and SCA range from .58 to .76; for the males from .64 to .73; and for females from .76 to .79. All of these correlations are statistically significant beyond the .05 level. The correlations are of a consistent magnitude through grades 8, 9, 10, 11 and 12. And at each grade level the correlations are slightly higher for females than for males.

TABLE 4.13
PEARSON PRODUCT MOMENT CORRELATIONS
BETWEEN PERCEIVED PARENTAL EVALUATIONS
AND SELF-CONCEPT OF ACADEMIC ABILITY
GRADES 8-12 FOR LONGITUDINAL POPULATION

Grade	Total N=Approx. 562	Males N=Approx. 255	Females N=Approx. 307
8th	.71	.64	.76
9th	.76	.73	.79
10th	.73	.70	.76
11th	.73	.69	.76
12th	.58	.69	.76

All r's significant beyond .05 level

In Table 4.14 it can be seen that the correlations between perceived friends' evaluations and SCA increased gradually and systematically from 8 through grade 12 for both boys and girls. As was the case for perceived parental evaluations, the females show a higher correlation between perceived friends' evaluations and SCA at each grade level. All correlation coefficients were statistically significant (.05 level).

TABLE 4.14
PEARSON PRODUCT MOMENT CORRELATIONS
BETWEEN PERCEIVED FRIENDS' EVALUATIONS
AND SELF-CONCEPT OF ABILITY
GRADES 8-12 FOR LONGITUDINAL POPULATION

Grade	Total N=Approx. 562	Males N=Approx. 255	Females N-Approx. 307
8th	.50	.36	.65
9th	.61	.58	.66
10th	.68	.66	.70
11th	.72	.70	.76
12th	.77	.71	.76

All r's significant beyond .05 level

No systematic increase or decrease in correlations between perceived teachers' evaluations and self-concept of ability was noted over the 5 years (Table 4.15). Unlike the

TABLE 4.15
PEARSON PRODUCT-MOMENT CORRELATIONS
BETWEEN PERCEIVED TEACHERS' EVALUATIONS
AND SELF-CONCEPT OF ACADEMIC ABILITY
GRADES 8-12 FOR LONGITUDINAL POPULATION

Grade	Total N=Approx. 562	Males N=Approx. 255	Females N=Approx. 307
8th	.59	.50	.70
9th	.59	.55	.63
10th	.66	.69	.63
11th	.61	.65	.57
12th	.63	.64	.63

All r's significant beyond .05 level

results for parents and friends, females did not show consistently higher correlations than males for teacher evaluations and self-concept. All coefficients are statistically significant beyond the .05 level.

Comparison of the correlation of perceived evaluations of parents, friends, and teachers with SCA over the longitudinal period indicate that correlations with parents evaluations remained relatively constant, while those with friends evaluations increased until at grade 12 they were slightly higher than the correlations between perceived parental evaluations and self-concept of ability. The correlations between perceived teachers evaluations and SCA were slightly lower than the others except in the 8th grade.

Interrelation of Others' Evaluations. -- Since the items measuring perceived evaluations of parents, friends and teachers are of similar wording and format, one might suspect that they are all measuring the same thing. For this reason we have sought to determine the extent to which they are independent variables and the extent to which they independently affect self-concept of ability. The correlation matrix in the appendix illustrates a high association between the perceived evaluations of academic ability of parents, friends, and teachers, with correlations ranging as follows:

PPEVxPFEV	.54 to .68
PPEVxPTEV	.55 to .63
PTEVxPFEV	.51 to .64

Although these correlations are moderately high, more than 50% of the variation in PPEV is not shared with PFEV even under the condition of highest correlation (.68). The same holds true for the correlations between the other evaluation variables.

We noted in Chapter III that parents are identified as significant others by nearly all students at all grade levels but there was variation in the proportion who named friends and teachers. Because of the persistance in the identification of parents we have examined the affect of controlling the perceived evaluation of teachers and friends on the correlation between perceived parental evaluation and self-concept of ability. As noted in Table 4.16 the first order correlation in each case remains .45 or above except in the senior year. In the latter year, however, the correlations between PPEV and SCA for males and females separately are decidedly higher than for the combined groups.

TABLE 4.16
CORRELATIONS BETWEEN PERCEIVED PARENTAL EVALUATION
AND SELF-CONCEPT OF ABILITY
WITH PERCEIVED FRIENDS AND TEACHERS EVALUATIONS
PARTIALLED OUT FOR GRADES 8 THROUGH 12

1 = PPEV
2 = SCA
3 = PFEV
4 = PTEV

		Control Variable	
		PFEV	PTEV
Grade	Zero Order r_{12}	1st Order $r_{12.3}$	1st Order $r_{12.4}$
8	.71	.60	.57
9	.76	.62	.63
10	.73	.49	.54
11	.72	.45	.53
12	.58	.25	.32

Table 4.17 shows the correlations between both perceived friends and teachers evaluations and self-concept of ability with perceived parents evaluations partialled out. In general the

effect of variations in perceived friends and teachers evaluations on SCA are substantially reduced by controlling perceived parents evaluation. But it will be noted that partialling out the effect of variation in PFEV tends to reduce the PPEV-SCA correlation somewhat more in later years. Conversely, when variation in PPEV is partialled out of the PFEV-SCA relationship, less effect is evident as grade level increases.

TABLE 4.17
CORRELATION BETWEEN PERCEIVED FRIENDS EVALUATION AND SELF-CONCEPT OF ABILITY
AND BETWEEN PERCEIVED TEACHERS EVALUATION AND SELF-CONCEPT OF ABILITY
WITH PERCEIVED PARENT EVALUATION PARTIALLED OUT
FOR GRADES 8 THROUGH 12

	PFEV-SCA		PTEV-SCA	
Grade	r_{12}	$r_{12.3}$	r_{12}	$r_{12.3}$
8	.50	.19	.59	.34
9	.61	.30	.59	.32
10	.68	.35	.66	.37
11	.72	.45	.61	.29
12	.77	.61	.63	.42

Thus, the imperfect sharing of variation among the perceived evaluation scales and the differential effects of partialling do not confirm the view that these measures are one and the same. A change in the magnitude of influence on SCA by parents and friends, with friends gaining in the later high school years is also apparent.

Hypothesis Five: Change in students' perceptions of the evaluations of their academic ability by others (parents, friends, and teachers) are associated with parallel changes in self-concepts of ability.

Testing this hypothesis involved using the same technique of cross-tabulating plus, zero, and minus changes on the variables as was shown under Hypothesis two. Procedures used in defining change are discussed in the methodology section. In each of the 21 tests appearing in Table 4.18 confirmation of Hypothesis five is evident. Over both one and two year periods changes in students' perceptions of the evaluations of their academic ability by parents, friends, and teachers are associated with like changes in self-concept of academic ability. The coefficients of contingency range from approximately .30 to over .50. The variations in magnitude of association for the three sets of perceived evaluations are not systematic enough to warrant any conclusion concerning the relative influence of parents, teachers, or friends over the high school years. Neither is there any apparent trend in magnitude of associations over the 5 years. Association of changes over two year periods are not consistently stronger than over one year as was the case for the SCA-GPA relationship described earlier.

Separate analysis of change in perceived evaluations and SCA for males and females indicated only one significant difference by sex from the findings for the combined population.

TABLE 4.18
SUMMARY OF ANALYSIS FOR ASSOCIATION BETWEEN CHANGES IN PPEV, PFEV, AND PTEV AND CHANGES IN SELF-CONCEPT OF ACADEMIC ABILITY OVER 1 AND 2 YEAR PERIODS AMONG STUDENTS IN MIDDLE THREE STANINES ON EACH VARIABLE IN FIRST YEAR

Change Period	X^2	N	Probability less than
	Perceived Parental Evaluation x SCA		
1 8-9	59.26	265	.05
1 8-10	39.36	210	.05
2 9-10	37.38	218	.05
3 9-11	21.54	154	.05
2 10-11	27.37	206	.05
1 10-12	47.81	144	.05
3 11-12	34.81	212	.05
	Perceived Friends' Evaluations x SCA		
2 8-9	34.30	268	.05
2 8-10	35.11	210	.05
3 9-10	27.58	226	.05
1 9-11	40.04	154	.05
3 10-11	26.37	229	.05
3 10-12	34.95	144	.05
2 11-12	55.85	241	.05
	Perceived Teachers' Evaluations x SCA		
3 8-9	21.07	272	.05
3 8-10	32.55	210	.05
1 9-10	43.24	236	.05
2 9-11	28.20	154	.05
1 10-11	33.13	222	.05
2 10-12	35.44	144	.05
1 11-12	62.71	265	.05

Summary

1. The hypothesis that students' perceptions of the evaluations of their academic ability by others (parents, friends, and teachers) are associated with self-concepts of academic ability was confirmed in 15 tests.

2. The correlations between perceived parental evaluation and SCA were above .70 for the combined group except in the 12th grade. There the separate correlations for males and females were especially as high as other years but the combined correlation was substantially lower. The correlations for females were slightly higher than for males at each grade level.

3. The correlation between perceived friends' evaluations and SCA increased gradually but systematically from grades 8-12 (.50 to .77) with females again showing higher correlations than males.

4. While the PPEV-SCA correlation is larger than the PFEV-SCA correlation in the eight and ninth grades, the reverse begins to show in the later years.

5. The imperfect sharing of variation between the three perceived evaluations scales and the differential effects of partial correlation methods using PFEV, PTEV, or PPEV as control variables suggests that these are somewhat distinct from one another.

6. The hypothesis that change in perceived evaluations of ability is associated with like change in SCA was confirmed in each of 21 tests.

Competing Variables Accounting for Variation in Self-Concept

It is clear from the foregoing analysis that self-concept of ability is consistently related to the perceived evaluations of others and that changes in the two variables are likely to occur together. Since socio-economic status and measured intelli-

TABLE 4.19

CORRELATIONS BETWEEN PERCEIVED EVALUATIONS BY OTHERS AND SELF-CONCEPT OF ACADEMIC ABILITY WITH EFFECT OF VARIATION IN SOCIO ECONOMIC STATUS PARTIALLED OUT

1. = Perceived Evaluation
2. = Self-Concept of Ability
3. = Socio-Economic Status

Grade	Perceived Parents Eval x SCA Zero Order	Perceived Parents Eval x SCA First Order	Perceived Friends Eval x SCA Zero Order	Perceived Friends Eval x SCA First Order	Perceived Teachers Eval x SCA Zero Order	Perceived Teachers Eval x SCA First Order
8	$r_{12} = .72$	$r_{12.3} = .69$	$r_{12} = .50$	$r_{12.3} = .48$	$r_{12} = .59$	$r_{12.3} = .57$
9	$r_{12} = .76$	$r_{12.3} = .74$	$r_{12} = .61$	$r_{12.3} = .60$	$r_{12} = .59$	$r_{12.3} = .57$
10	$r_{12} = .73$	$r_{12.3} = .72$	$r_{12} = .68$	$r_{12.3} = .67$	$r_{12} = .66$	$r_{12.3} = .65$
11	$r_{12} = .73$	$r_{12.3} = .71$	$r_{12} = .72$	$r_{12.3} = .71$	$r_{12} = .61$	$r_{12.3} = .59$
12	$r_{12} = .58$	$r_{12.3} = .56$	$r_{12} = .77$	$r_{12.3} = .76$	$r_{12} = .63$	$r_{12.3} = .62$

gence are also known to be correlated with self-concept, we have analyzed the extent to which the correlations between the perceived evaluations of others (parents, friends, and teachers) and SCA are reduced by controlling for variation in SES and IQ.

Table 4.19 summarizes the results of partialling out the effect of variation in SES on the PPEVxSCA, PFEVxSCA, and PTEVxSCA correlations. In all 15 instances inconsequential reductions occur, so there is clear evidence that perceived evaluations are related to self-concept independently of socio-economic status.

Correlations between perceived evaluations and self-concept of ability in 9th and 11th grade are shown in Table 4.20.

TABLE 4.20
CORRELATION BETWEEN PERCEIVED EVALUATIONS
OF PARENTS, FRIENDS AND TEACHERS
AND SELF-CONCEPT OF ABILITY
WITH MEASURED INTELLIGENCE PARTIALLED OUT
IN 9TH AND 11TH GRADE

Variables

1_p - Perceived Parents Evaluation
1_f - Perceived Friends Evaluation
1_t - Perceived Teachers Evaluation

2. Self-Concept of Ability
3. Measured Intelligence

Grade	Zero Order	1st Order
9th Parents	$r_{1_p2} = .73$	$r_{1_p2.3} = .69$
Friends	$r_{1_f2} = .61$	$r_{1_f2.3} = .54$
Teachers	$r_{1_t2} = .59$	$r_{1_t2.3} = .51$
11th Parents	$r_{1_p2} = .73$	$r_{1_p2.3} = .56$
Friends	$r_{1_f2} = .72$	$r_{1_f2.3} = .58$
Teachers	$r_{1_t2} = .61$	$r_{1_t2.3} = .48$

The zero order correlation which range from .73 to .59 are reduced to .69 to .48 by partialling out the effect of variation in measured intelligence. Eleventh grade correlations show greater first order reductions than do those for ninth grade. In all instances the first order correlations between perceived evaluations and SCA remain statistically significant and above .48 in magnitude.

The correlations between measured intelligence and self-concept of ability were .51 in the 9th grade and .59 in the 11th. As shown in Table 4.21 these correlations are reduced less by partialling out perceived teachers evaluations than by partialling out perceived parents and friends evaluations. When variation in PPEV is partialled out of the 9th grade IQ-SCA relationship, it is reduced from .51 to .29 and the 11th grade correlation declines from .59 to .36. These analyses indicate that self-concept of ability is more highly related to perceived evaluations than it is to measured intelligence. This holds when the third variable

TABLE 4.21
CORRELATIONS BETWEEN MEASURED INTELLIGENCE
AND SELF-CONCEPT OF ABILITY
WITH THE EFFECT OF VARIATION
IN PERCEIVED EVALUATIONS CONTROLLED

		First Order IQ x SCA		
Grade	Zero Order IQ x SCA	PPEV Controlled	PFEV Controlled	PTEV Controlled
9th	.51	.29	.40	.40
11th	.59	.36	.30	.45

is controlled as well as in the zero order correlations.

Changes in Self-Concept in Relation to Socio-Economic Status. -- In addition to the analysis of the effect of socio-economic status on the relation between perceived evaluations of others and self-concept of ability we examined whether or not level of SES or changes in SES were related to changes in self-concept of ability.

Chi-square analyses of the distribution of changes in self-concept of ability over two year periods, 8th to 10th, 9th to 11th, and 10th to 12th, by socio-economic status level at the beginning of each period revealed no evidence of any relationship. None of the chi-square values indicated that level of socio-economic status of the students family differentially affected changes in the self-concept of ability. Similar results were obtained in analysis of the relation of changes in self-concept of ability to changes in socio-economic status over one and two year periods. None of the seven chi-square tests of changes for subjects scoring in the three middle stanine of these variables showed a significant relationship (see Table 4.22, page 116).

Changes in Self-Concept of Ability in Relation to Measured Intelligence. -- The relation of changes in self-concept of ability to both the level of measured intelligence and changes in IQ from the ninth to eleventh grade was investigated. In the former, the relation of 9th grade IQ level to SCA changes from 8th to 10th grades and 11th grade IQ level to SCA changes from 10th to 12th grade were examined. In neither case was there any evidence that self-concept change varied with intelligence level. Neither was there any evidence

TABLE 4.22
SUMMARY OF CHI-SQUARE ANALYSIS FOR ASSOCIATION
BETWEEN CHANGES IN SOCIO-ECONOMIC STATUS AND SELF-CONCEPT OF ABILITY
AMONG STUDENTS IN THE MIDDLE STANINES
ON BOTH VARIABLES IN FIRST YEAR

Change period	X^2	N	P
8-9	4.37	132	NS
8-10	5.66	132	NS
9-10	6.60	123	NS
9-11	1.52	123	NS
10-11	2.92	112	NS
10-12	.92	112	NS
11-12	.87	131	NS

that changes in self-concept of ability was associated with changes in IQ during the two year period 9th to 11th grade. These findings are further evidence that self-concept of ability is largely independent of measured intelligence.

Relation of Changes in Self-Concept to School Attended and to Subject Matter Orientation. -- In addition to socio-economic status and intelligence, changes in self-concept of ability might be accounted for by the school social norms or by the type of curriculum in which students are enrolled.

Changes in self-concept from 9th to 11th grade, and from 10th to 12th grade did not vary according to high schools attended among those students with SCA scores in the middle stanines. Earlier changes in self-concept of ability, grade 8 to grade 10, varied somewhat among the schools attended in the 8th grade.

Hypothesizing that students oriented to the natural sciences and math would show change on self-concept of ability more often than the non-science oriented, the subjects were classified on the basis of their high school courses and a chi-square analysis conducted. There was no evidence to support this hypothesis. Science or non-science orientation as reflected in courses enrolled in made no difference as far as frequencies or direction of change in self-concept of ability.

Summary

1. In 15 tests only slight reductions in the correlation between perceived evaluations and self-concept of ability occurred when variation in SES was controlled.

2. Statistical control for variation in measured intelligence did not reduce the perceived evaluation-self-concept of ability correlations to below the .50 level in 6 tests.

3. Control for perceived evaluations of others reduces the correlation between measured intelligence and self-concept of ability significantly at both the 9th and 11th grade.

4. In seven tests, changes in socio-economic status were not associated with changes in self-concept of ability.

5. Changes in measured intelligence from 9th to 11th grade were not associated with changes in self-concept of ability for those years.

6. Direction and rate of changes in self-concept of ability were generally not associated with socio-economic status, measured intelligence, school attended, or subject matter orientation.

Self-Concept as an Intervening Variable

In the theory stated in Chapter I we hypothesized that self-concept behaviors intervene between perceptions of others' evaluations of a student's academic ability and his academic achievement. Four research hypotheses were formulated to test this general hypothesis.

Hypothesis Six: The magnitude of the correlation between the perceived evaluations of academic ability by others (1) and self-concept of academic ability (2) is greater than the correlation between self-concept of ability and academic achievement (3)

$$H: \; r_{12} > r_{23}$$

This hypothesis is derived in part from the postulate, demonstrated previously that self-concept of ability is a necessary but not sufficient factor in school achievement. In this context we hypothesize that some students who are evaluated by others as able to achieve and who believe that they are able to do so may not chose to perform in accord with either the perceived evaluations of others or their self-concept of ability. The correlation between SCA and GPA are therefore hypothesized to be lower than the perceived evaluation and SCA correlations.

As indicated in Table 4.23, page 119, perceived evaluations of academic ability by others are more highly correlated with self-concept of academic ability than self-concept of academic ability is with achievement. In 14 out of 15 comparisons, the coefficients reflect this difference in magnitude of association. The one (deviant) instance occurs at the eighth grade level where the association between perceived friends' evaluations and self-concept of ability yields a smaller correlation coefficient (.50) than the association between SCA and achievement (.55). A previous analysis of the longitudinal population for grades seven through ten showed a PFEVxSCA correlation of .60 and a SCAxGPA correlation of .60

TABLE 4.23
CORRELATIONS BETWEEN PERCEIVED EVALUATIONS BY PARENTS, FRIENDS AND TEACHERS AND SELF-CONCEPT OF ACADEMIC ABILITY, AND BETWEEN SELF-CONCEPT OF ACADEMIC ABILITY AND ACHIEVEMENT FOR THE LONGITUDINAL POPULATION

Grade	PPEVxSCA	PFEVxSCA	PTEVxSCA	SCAxGPA
8	.71	.50	.59	.55
9	.76	.61	.59	.56
10	.73	.68	.66	.53
11	.72	.72	.61	.57
12	.58	.77	.63	.49

Hypothesis Seven: The magnitude of the correlation between self-concept of academic ability (2) and academic achievement (3) is greater than the correlation between perceived evaluations of academic ability (1) and achievement (3).

$$H: \; r_{23} > r_{13}$$

Hypothesis seven is derived from the assumption that any variable intervening between independent and dependent variables should be more highly correlated with the dependent variable than the independent variable is with the dependent one. The relevant correlations are presented in Table 4.24 on the following page.

TABLE 4.24
CORRELATIONS BETWEEN SELF-CONCEPT OF ACADEMIC ABILITY AND ACHIEVEMENT, AND PERCEIVED EVALUATION AND ACHIEVEMENT
LONGITUDINAL POPULATION
MALES AND FEMALES COMBINED

Grade	SCAxGPA	PPEVxGPA	PFEVxGPA	PTEVxGPA
8	.55	.47	.32	.41
9	.56	.52	.46	.44
10	.53	.46	.45	.41
11	.57	.49	.46	.44
12	.49	.40	.46	.49

Confirmation of hypothesis seven is suggested by the consistent direction of the difference in 14 out of 15 comparisons between the self-concept of ability-grade point average and perceived evaluation-grade point average correlations in Table 4.24. The divergent result for 12th grade where PTEVxGPA is equal to SCAxGPA is a function of sex differences. Table 4.1 shows that the SCAxGPA correlation for males (.48) was smaller than for females (.58) in the 12th grade. When males and females are considered separately, the hypothesized difference holds (see Appendix E).

A more refined test of hypothesis seven is based on a comparison of the first order correlations in which variation in the perceived evaluations of others are partialled out the correlation between SCA and GPA, and Self-Concept of Ability is partialled out of the correlations between perceived evaluations of others and GPA. It was hypothesized that the resulting first order correlations would differ in the same direction as the zero order correlations. It was further hypothesized that the correlations between the intervening variable, SCA and the dependent variable, GPA, would be reduced less by controlling the independent variable, perceived evaluation, than would the correlations between the independent and dependent variables by controlling for the intervening variable.

As indicated on page 122 in Table 4.25 the evidence supports hypothesis seven. Thirteen out of fourteen of the first order correlations between perceived evaluations and GPA when controlling for SCA were smaller than the correlations between SCA and GPA controlling for perceived evaluation. In this one exception they were equal. Furthermore, it will be noted that first order correlations between Self-Concept of Ability and grade-point average range from .25 to .48. On the average these correlations are only .19 less than the comparable zero order correlations. On the other hand the first order correlations between perceived evaluations and grade point average range from .06 to .25 and they average .30 below the comparable zero order correlations. The correlation between GPA and SCA are not only larger than those between GPA and Perceived Evaluations but are reduced less by controlling for the perceived evaluation than are the latter correlations by controlling for self-concept. This analysis therefore supports the hypothesis that Self-Concept of Ability is an intervening variable between Perceived Evaluations and grade-point average.

The final test of the general hypothesis that self-

TABLE 4.25
THE FIRST ORDER CORRELATIONS* BETWEEN GRADE POINT AVERAGE (GPA)
AND SELF-CONCEPT OF ABILITY (SCA)
COMPARED WITH CORRELATION BETWEEN GPA
AND PERCEIVED EVALUATIONS OF
PARENTS (PPEV), FRIENDS (PFEV), AND TEACHERS (PTEV),
FOR LONGITUDINAL POPULATION
IN GRADES 8 THROUGH 12

Variables:
1. SCA
2. GPA
3. PPEV
4. PFEV
5. PTEV

Grade	First Order Correlation With SCA or Perceived Evaluations Controlled		
8	$r_{12.3} = .32$	$r_{12.4} = .48$	$r_{12.5} = .42$
	$r_{23.1} = .14$	$r_{24.1} = .06$	$r_{25.1} = .12$
9	$r_{12.3} = .32$	$r_{12.4} = .41$	$r_{12.5} = .41$
	$r_{23.1} = .19$	$r_{24.1} = .19$	$r_{25.1} = .16$
10	$r_{12.3} = .33$	$r_{12.4} = .34$	$r_{12.5} = .39$
	$r_{23.1} = .21$	$r_{24.1} = .11$	$r_{25.1} = .09$
11	$r_{12.3} = .36$	$r_{12.4} = .40$	$r_{12.5} = .42$
	$r_{23.1} = .16$	$r_{24.1} = .09$	$r_{25.1} = .16$
12	$r_{12.3} = .34$	$r_{12.4} = .25$	$r_{12.5} = .25$
	$r_{23.1} = .14$	$r_{24.1} = .15$	$r_{25.1} = .25$

*From Wm. J. Paisley, Tables of Multiple and Partial Correlation Coefficients for Three Variable Problems. Stanford-Stanford University Press, 1964.

concept is an intervening variable is based on the patterns of change in the three variables. If it does intervene between perceived evaluations of others and achievement, change in self-concept should be more highly associated with change in each of the other variables than are changes in the other two Variables. Hypotheses eight and nine therefore were formulated to test the general change hypothesis.

Hypothesis Eight: Association of changes in perceived evaluations of academic ability by others (1) and changes in self-concept (2) is greater than the association of changes in perceived evaluations (1) of academic ability and changes in achievement (3).

H: Association of changes 1 with $2 > 1$ with 3

The results in Table 4.26 confirm this hypothesis. In every instance the association between changes in perceived evaluations and changes in self-concept of ability was stronger (using C coefficients for comparisons) than the association between changes in perceived evaluations and changes in achievement.

TABLE 4.26
CHI-SQUARE VALUES FOR ASSOCIATION OF CHANGES
IN PERCEIVED EVALUATION (PPEV, PFEV, PTEV)
AND CHANGES IN SELF-CONCEPT OF ABILITY
COMPARED WITH ASSOCIATION OF CHANGES
IN PERCEIVED EVALUATION AND GRADE POINT AVERAGE
AMONG THE MIDDLE STANINES
FOR ONE AND TWO YEAR PERIODS

	Changes in					
Change	PPEV		PFEV		PTEV	
Period	PPEVxSCA	PPEVxGPA	PFEVxSCA	PFEVxGPA	PTEVxSCA	PTEVxGPA
8-9	56.26*	4.94	34.30*	12.18*#	21.07*	5.95#
8-10	39.36*	1.56	35.11*	3.11	32.55*	6.94#
9-10	37.38*	10.91#	27.58*	2.97	43.24*	21.92*
9-11	21.54*	1.60	40.04*	3.30	28.20*	20.00*
10-11	27.37*	7.78#	26.37*	7.89#	33.13*	15.33*
10-12	47.81*	3.66	34.94*	17.23*	35.44*	12.59*#
11-12	34.81*	4.61#	55.85*	2.93	62.71*	1.34#

Critical Value for Chi-square, at .05 level = 9.5
* = Statistically significant X^2 value
# = direction of deviation of observed f from expected f is contrary to the hypothesis of concomitant change

In only four of the twenty-one tests did chi-square values and direction of deviation of observed from expected frequencies show a statistically significant association between changes in perceived evaluations and changes in achievement.

Hypothesis Nine: The association of changes in self-concept (2) with changes in achievement (3) is greater than the association of changes in perceived evaluations of academic ability (1) and changes in achievement (3).

H: Association of changes 2 with 3 > 1 with 3

The analysis for hypothesis nine is summarized in Table 4.27. It will be noted that change in self-concept of ability and change in grade point average are significantly related at the .05 level of probability in four of the seven tests. All three tests on two year periods are significant. Of the four tests of association of change over one year periods, one probability is less than .05 and two are less than .10. In all tests

TABLE 4.27
CHI-SQUARE VALUES FOR ASSOCIATION OF CHANGES IN SELF-CONCEPT OF ABILITY AND CHANGES IN GRADE POINT AVERAGE COMPARED WITH THE ASSOCIATION OF CHANGES IN PERCEIVED EVALUATIONS (PPEV, PFEV, PTEV) AND CHANGES IN GRADE POINT AVERAGE AMONG MIDDLE STANINES FOR ONE AND TWO YEAR PERIODS

Change		Changes in		
Period	SCAxGPA	PPEVxGPA	PFEVxGPA	PTEVxGPA
8-9	8.64 p.10	4.94	12.18*#	5.95#
8-10	14.21*	1.56	3.11*	6.94#
9-10	7.98 p.10	10.91*#	2.97	21.92*
9-11	22.57*	1.60	3.30	20.00*
10-11	21.82*	7.78#	7.89#	15.33*
10-12	29.95*	3.66	17.23*	12.59*#
11-12	5.86 p.25	4.61#	2.93	1.34#

Critical Value for Chi-Square, with four degree of freedom, .05 = 9.5

* Statistically significant X^2 value at .05 level

# Direction of deviations of observed frequency from expected frequency in critical cells is counter to hypothesis of concomitant change.

the cells contributing to the chi-square are in those hypothesized for concommitant change. Change in Self-Concept of ability is therefore clearly associated with change in grade point average over two years periods and may be for shorter periods.

On the other hand, changes in perceived parental evaluations were not once, associated concomitantly with Grade-point average changes even at the .10 level of probability. The same may be observed in six out of seven tests for concomitant changes in perceived friends evaluation and GPA. Changes in perceived teachers' Evaluations and GPA, were associated in the appropriate direction beyond the .05 level in three of the seven tests. These all occured in the ninth to 11th grade period. A reverse relationship was found in the 10th-12th grade period.

Certainly we can conclude, with little counter-evidence from this study, that changes in the perceived evaluations of parents, friends, and teachers are less likely to be associated with concomitant changes in grade point average, than are changes in self-concept of ability. But the SCA-GPA association is not to be treated as a direct linear relationship for as we have seen in a previous section, self-concept is a necessary but not sufficient condition for achievement.

Summary

The analysis of four hypotheses designed to test whether or not self-concept of ability is an intervening variable provide support for this position. Until contrary evidence is produced it seems safe to conclude from our five year study that perceived evaluation by others are less likely to affect achievement directly than when they function through self-concept of ability behavior.

CHAPTER V

EXPERIMENTS IN SELF-CONCEPT AND ACHIEVEMENT CHANGE - A FOLLOW-UP

Our analysis of self-concept of ability in the previous chapter demonstrates that this variable is subject to change and that such change is related to change in school achievement. We had previously hypothesized the possibility of change from the theory elaborated in Chapter I. One of the studies in this series, therefore, was designed to enhance self-concept of ability and through this school achievement. The treatments were designed to modify the expectations and evaluations of significant others or introduce significant others who expressed higher expectations and evaluations of the students. Three experiments were conducted during the ninth grade. The results of this study have been fully reported through the 10th grade.[88] Subsequent patterns of self-concept and achievement in the 11th and 12th grades are analyzed in this report to determine whether or not significant changes have occurred for these subjects in post experiment years.

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[88] Brookover, et. al, Self-Concept of Ability and School Achievement II, Project 1636, 1965, op. cit.

Three different experiments were designed to (1) modify the images and expectations which the parents held for their child, thereby enhancing the child's self-concept of ability and achievement; (2) increase the self-concepts of academic ability of low-achieving students through interaction with an "expert" from a university who formally communicated basic information which the students might "internalize" to enhance their self-concepts of ability; and (3) counteract the effect of interaction with parents who held low expectations for their children through interaction between students and a counselor who held positive images and high expectations for the students.

The results of these experiments as reported earlier were:

1. The self-concept of ability of low achieving students was enhanced by treatment procedures utilizing parents, and this improvement in self-concept was reflected in improved academic performance. The positive academic performance, however, did not maintain itself when the treatment was discontinued.[89]
2. An expert presenting material designed to enhance self-concept of ability in a formal manner is not an efficient strategy for increasing either self-concept of ability or school performance among low-achieving ninth grade students.[90]
3. No predicted changes in self-concept or grade point average occurred in the Counselor Experiment, either within or between the experimental and control groups. In fact, the experimental group tended, though not significantly, toward lower GPA than the control at the end of the treatment; the experimental group also regarded grades as less important, perceived teachers'

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[89] Ibid., p. 100.

[90] Ibid., p. 124.

> evaluations of them as lower, and became generally more insecure.[91]

Even though significant changes were not observed as a consequence of the "Counselor" and Expert experiments, we have examined the students' self-concept of ability and grade point averages in the eleventh and twelfth grades for possible delayed reactions to the treatment programs. The hypotheses tested in the original experiments were stated as follows:

Parent Experiment

Hypothesis 1. Systematically developed increases in perceived academic evaluations and expectations which parents (as significant others) hold of low-achieving students will result in significant increases in their self-concepts of ability.

Hypothesis 2. Systematically developed increases in self-concepts of ability (as induced in hypothesis #1) will result in significant increases in the level of school achievement.

Expert Experiment

Hypothesis 3. The self-concepts of low achieving students can be significantly raised by having a person who is presented as an expert give these students evidence that they are more able than they perceived themselves to be, and that a higher level of achievement is expected of them. Such increases will be significantly greater on the part of those students who subsequently indicate the expert as a significant other than for those who do not so perceive him.

Hypothesis 4. Increases in the self-concepts of ability (as induced in Hypothesis 3) will result in significant increases in the level of school achievement.

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[91] _Ibid._, p. 160.

Counselor Experiment

Hypothesis 5. The self-concepts of low achieving students who perceive that their parents (as significant others) hold low expectations of them can be increased by a counselor who systematically provides a counteracting set of high expectations.

Hypothesis 6. The increases in self-concept of ability (as induced in Hypothesis 5) will result in significant increases in level of school achievement.

We had hoped to make a definitive test of these hypotheses by following the students involved in each experimental design through high school. This has not been feasible because a large proportion of the students did not remain in the school system throughout the high school years. As shown in Table 5.1, page 131, a total of 193 students were in the various experimental, placebo, and control groups at the end of the treatment in the ninth grade. This number declined to 180 in the 10th and 128 in the 11th grade. In the 12th grade, 128 were in school but complete data for four years were not available for 20 of these students. This left a total of 108 students for whom all data were available over the four year period. Twenty-five students dropped out of school during the period. The remainder transferred to other schools.

Since complete data are available for only 56 percent of the sample involved in the three experiments, it is not feasible to make tests of differences among the experimental, placebo, and control groups or of changes in the groups over the four year period. We have, however, calculated the mean self-concept of

TABLE 5.1
NUMBER OF STUDENTS IN VARIOUS EXPERIMENTS
BY GROUP DURING TREATMENT
AND IN SUBSEQUENT HIGH SCHOOL YEARS

Group	During 9th Grade	Fall 10th Grade	Fall 11th Grade	Fall 12th Grade	Complete Data All Years
Parents Experiment					
Experimental	19	19	13	16	12
Placebo	17	14	12	14	11
Control	22	20	14	14	13
Expert Experiment					
Experimental	32	32	20	17	15
Placebo	28	25	18	17	14
Control	26	23	20	18	17
Counselor Experiment					
Experimental	24	23	15	13	11
Control	25	24	16	19	15
Total	193	180	128	128	108

ability and grade point averages for those students for whom complete data are available to determine whether or not there were any observable trends. These data are shown in Tables 5.2 and 5.3.

The Parents Experiment

The ninth grade mean self-concept of ability of each group in the parents experiment is close to the mean of the original sample groups at that time. This suggests that the students on whom

TABLE 5.2
MEAN SELF-CONCEPT OF ABILITY SCORES OF VARIOUS GROUPS IN THREE EXPERIMENTS BASED ON STUDENTS FOR WHOM COMPLETE DATA ARE AVAILABLE FOR FOUR YEARS, 9TH THROUGH 12TH GRADE

			Mean Self-Concept of Ability		
Group	N.	Fall 9th Grade	Fall 10th Grade	Fall 11th Grade	Fall 12th Grade
Parents Experiment					
Experimental	12	26.08	27.17	26.08	26.17
Placebo	11	27.73	27.27	26.09	26.00
Control	13	24.23	23.38	24.38	25.53
Expert Experiment					
Experimental	15	24.93	25.47	26.06	24.40
Placebo	14	25.00	24.64	24.29	23.64
Control	17	25.53	26.47	27.71	26.59
Counselor Experiment					
Experimental	11	25.90	25.09	25.27	25.18
Control	15	25.40	24.47	25.47	24.67

we have complete data may be representative of the sample. An examination of the self-concept of ability of these students in subsequent years provides some indication of what happened following the experimental treatment in the ninth grade. As noted above, the experimental group made significant gains in self-concept during the period of treatment. The 12 students in the group that we have been able to follow-up showed a similar pattern of increase and declined as the total treatment group did from the

Fall of the 10th grade to the Fall of the 11th grade, Table 5.2. There was no change in the mean self-concept of the 12 students in the experimental group from the 11th to the 12th grade. Although this is not a random sample of the experimental group in the ninth grade, it suggests that the impact of treatment during the ninth grade did not continue in subsequent years, and that there was no delayed reaction resulting in change in self-concept of ability.

After the Fall of the 10th grade, the mean self-concept of ability of those students in the placebo group for whom complete data are available was very close to that of the experimental group. This group had declined in mean self-concept during the experimental period and continued to decline in the 10th grade. There was no change in the 12th grade.

The control group in the parents experiment had a slightly lower mean self-concept at the beginning of the experiment than the other groups. Like the total control group, the 13 students available for follow up analysis declined in mean self-concept of ability during the 9th to 10th grade year. This mean increased in the 11th grade but declined again in the 12th grade.

These available data on the students from the parents experiment provide no support for the hypothesis that the enhanced evaluations and expectations of parents during the ninth grade experimental period produced an increase in the subject students' self-concept of ability after the treatment ceased.

The mean grade point average of the experimental group increased significantly during the period of treatment but dropped

TABLE 5.3
THE MEAN GRADE POINT AVERAGE OF VARIOUS GROUPS
IN THREE EXPERIMENTS BASED ON STUDENTS
FOR WHOM COMPLETE DATA ARE AVAILABLE
OVER THE FOUR YEARS
9TH THROUGH 12TH GRADE

		Mean G.P.A.			
Group	N.	9th	10th	11th	12th
Parents Experiment					
Experimental	12	1.56	1.56	1.56	1.83
Placebo	11	1.50	1.30	1.62	2.09
Control	13	1.56	1.81	1.81	1.69
Expert Experiment					
Experimental	15	1.42	1.73	1.95	1.91
Placebo	14	1.50	1.92	1.84	2.00
Control	17	1.35	1.77	1.66	1.74
Counselor Experiment					
Experimental	11	1.90	1.55	2.05	1.67
Control	15	1.80	1.65	1.68	1.84

from the end of the treatment to the end of the 10th grade. The 12 students for whom we have complete longitudinal data were apparently not representatives of the total because there was no change in the G.P.A. from the 9th to 10th grade, Table 5.3 The original placebo group increased slightly in G.P.A. during the 9th grade, but declined in the 10th grade. Those members of the placebo group for whom we have complete data showed a similar pattern. The original control group increased only very slightly in mean

G.P.A. from the 9th to the 10th but the 13 for whom we have data made a considerable increase in G.P.A. during this period. This examination indicates that the students for whom we have complete data in the parents experiment are not representative of the original groups. There is, therefore, no sound basis for conclusions regarding any delayed impact of the treatment on G.P.A.

Among the students for whom complete data are available, it may be noted, Table 5.3, that the mean G.P.A. of both the experimental and placebo groups increased in the 12th grade while the control group mean declined after having been higher in the 10th and 11th grades. The changes in mean G.P.A. of these students provide no support for the hypothesis that systematically developed increases in self-concept of ability result in increases in school achievement during periods after the treatment has been discontinued.

Expert and Counselor Experiments

As reported earlier[92] there was no evidence that either the expert or counselor treatments had a significant effect on the self concept of ability. Thus, neither hypothesis 3 or 5 stated above was supported. Since there were no significant changes in self-concept, no increase in grade point average was expected and none was found. Although there was no short range impact of these treatments, the possibility of a delayed impact was worthy of examination. Since there was a slight, but not significant, decline in mean self-concept of ability among the counselor experimental group, we were particularly interested in the possibility of subsequent reversal of this trend.

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[92] Ibid. and earlier in this chapter.

As in the parents experiment we were handicapped by the decrease in the number of students for whom complete data are available. As noted in Table 5.1 only about one-half of the students in the several groups were available to provide data in each of the four years. We have examined the self-concept and grade point averages for each group, however, to see if any delayed effects are suggested.

It will be noted that the mean self-concept of ability in the "Expert" experimental group increased in the 11th grade while the placebo group mean decreased. The control group mean self-concept rose even more than the experimental group mean, however. The means of all three groups declined in the senior year. There is, therefore, no evidence of a significant delayed impact of the expert treatment on self-concept of ability.

The "Counselor" experimental group's mean self-concept of ability declined during the treatment, and the same is true of those students for whom we have complete data. Although there is a slight increase in the mean of this group in the 11th grade, it is not significant and declines slightly in the 12th grade. Among the control group students for whom data are available the pattern of mean self-concept is essentially the same as in the experimental group. There is, therefore, no evidence that the counselor treatment had any delayed impact on the self-concept of ability.

Since there was no significant change in self-concept in these two experiments, we did not anticipate changes in grade point average for either the experimental, control or placebo groups.[93] The mean G.P.A. of students for whom data were available are provided for each group, Table 5.3. Although there is some fluctuation in the means, there are no significant or consistent differences among the groups that would suggest a delayed impact on achievement.

Summary

Although the data available are inadequate to determine whether or not the hypotheses tested in three experiments were supported in post-treatment years, we have examined the data for the students available in all years. There is no evidence that the hypothesized effects occurred after the termination of the experiments reported earlier.

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[93] There was no placebo group in the "Counselor" experiment. The design of a placebo counselor contact did not seem feasible.

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CHAPTER VI

SUMMARY

The research reported in the previous chapters is the third of a series[94] designed to test several hypotheses and explore a number of questions relevant to a social psychological theory of school achievement. These studies have been based on data obtained from a single secondary school class in a midwestern city each year during the 7th through 12th grade. The basic theory, elaborated on in Chapter I, postulates that human behavior is a function of the expectations and evaluations of others who are significant to the actor as perceived by him and as internalized in a self-conception of what is appropriate and proper for him to do and what he is able to do. In this research the primary focus has been on the individual's self-concept of academic ability. Self-concept of academic ability refers to the evaluating definitions an individual holds of his ability to achieve in academic tasks as compared with others in his school class.

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[94] Previous reports were Brookover, Paterson and Thomas, Self-Concept of Ability and School Achievement, op. cit., and Brookover, LePere, Hamachek and Thomas, Self-Concept of Ability and School Achievement, II, op. cit.

The basic propositions of this theory assert that a student's self-concept of academic ability results from his perceptions of the evaluations significant others hold of his ability. The student's self-concept of academic ability in turn functions to limit the level of academic achievement attempted. Self-concept of academic ability is therefore hypothesized as an intervening variable between the expectations and evaluations of significant others and school achievement. The relationship of perceived evaluations of significant others is conceptualized as a necessary and sufficient condition, i.e., a change in the perceived evaluations of others will be reflected in a change in self-concept. The relationship of self-concept of academic ability to academic achievement, on the other hand, is hypothesized as a necessary but not a sufficient condition for the occurrence of a particular level of academic performance.

Self-concept of academic ability as used in this research should not be confused with other definitions of self or self-concept. It has not been our intention to measure or infer a self as a subjective phenomenon. Rather, self-concept of academic ability refers to a category of symbolic behaviors, and as such, to empirical events.

Significant Others

Since it is postulated that not all others with whom an individual interacts are equally relevant or important to a person in the definition of his behavior, it was necessary to identify those persons who were important or significant to the students. The data obtained for this purpose over the six year period reveals that parents are identified by nearly all students each year. Contrary to assumptions frequently made, this evidence indicates that parents and other family members are more likely than any other category to be "significant others" for adolescents during the junior and senior high school years.

Although the proportion of the students naming their friends as significant others is much lower than that naming parents, it increases somewhat during the six year period. Furthermore, analysis of the impact of others' evaluations on students' self-concept of ability indicates that the influence of friends increases somewhat in later years.

Less than half of the students identify teachers and other school personnel as significant others in the junior high school years, and this proportion declines during the later years. Although teachers may exert considerable influence on some students, there is no evidence from this study that teachers are important others for the major portion of the secondary school group.

Relation of Perceived Evaluation by Others to Self-Concept of Ability

The evaluations which students perceive parents, friends and teachers hold for them are consistantly correlated with self-concept of academic ability. The correlations range from .50 to .77 over the period of this study. Although all three perceived evaluations are significantly correlated with self-concept of ability, partial correlation analysis reveals that perceived parents' evaluation is more likely to affect self-concept than the evaluations of the peers or teachers. As noted, however, the impact of friends' evaluations on self-concept of ability increases in later years.

Changes in perceived evaluations are significantly related to changes in self-concept of ability over one and two year periods. This relationship between changes in the two variables and the reasonably high correlation between them supports the hypothesis that perceived evaluations of others are necessary and sufficient conditions for explaining variation in self-concept of ability.

Relation of Self-Concept of Ability to Achievement

The correlation between self-concept of ability and grade point average ranges from .48 to .63 over the six years. It falls below .50 only among the boys in the 12th grade. Such evidence supports the basic theory involved in this research. In addition, the higher correlation between perceived evaluations and self-concepts tends to support the theory that perceived evaluations are a necessary and sufficient condition for self-concept of ability but self-concept of ability is only a necessary but not sufficient condition for achievement. The latter is further supported by the analysis of the achievement of students with high and low self-concept of ability. This revealed that although a significant proportion of students with high self-concepts of ability achieved at a relatively lower level, practically none of the students with lower self-concepts of ability achieved at a high level.

Change in self-concept of ability over two year periods is significantly related to parallel change in grade point average. Although changes over one year tend in the same direction, the relationship is not significant at the five percent level of probability. Since self-concept of ability is hypothesized as a necessary but not sufficient condition in school achievement, a high association between changes in the two variables was not anticipated. The results, therefore, tend to confirm the hypothesized relationship.

Self-Concept of Ability as an Intervening Variable

The hypothesis that self-concept of ability intervenes between the independent variable, perceived evaluations, and the dependent one, school achievement, was generally supported by the analysis. The correlation between perceived evaluation and grade point average is generally less than the correlations between each of these variables and self-concept of ability. The partial correlations also substantiate the intervening variable proposition. In this the correlations between perceived evaluations and grade point average are significantly reduced by partialling out the effect of self-concept of ability; the correlation between self-concept of ability and grade point average is not, however, significantly reduced by partialling out the effect of variation in perceived evaluations. Furthermore, changes in perceived evaluations are not directly associated with changes in grade point average over various periods; but changes in self-concept of ability are associated with both changes in perceived evaluations and changes in grade point average over two year periods.

It seems quite clear from these analyses that self-concept of ability makes a significant contribution to the explanation of school achievement as a means through which the evaluations of others are translated into school achievement behavior.

Effect of I.Q. and Socio-economic Status on the Relations among Perceived Evaluations, Self-Concept, and Achievement

Both individual and social environment factors are related to the social psychological factors which are the primary focus of this research. Measured intelligence and socio-economic status, among other variables of both types, are known to be related to grade point average. Our research revealed that these variables are also correlated with self-concept of ability. It was, therefore, essential to determine whether or not either of these, measured intelligence or socio-economic status, accounted for the relationship among perceived evaluations, self-concept of ability, and grade point average. Neither does.

The correlations between perceived evaluations and self-concept of ability are only slightly reduced by partialling out the effect of variation in either measured intelligence or socio-economic status. Similarly, control for either of these variables reduces the correlation between self-concept of ability and grade point average to only a limited extent. In contrast, however, the correlations between measured intelligence and grade point average and that between socio-economic status and grades are both greatly reduced by partialling out the effect of variation in self-concept of ability.

The relationships supporting the social psychological theory of school learning presented here are not therefore greatly affected by variation in either measured intelligence or socio-economic status. Rather, the evidence indicates that much of the correlation between these variables and school achievement is accounted for by variation in self-concept of ability.

Relation of Self-Concept of Ability to Other Conceptions of Self

Much recent research has sought to increase our understanding of various conceptions of self and the relation of self to the performance of school children. A number of these studies are based on a general or unitary conception of self which may encompass several dimensions or aspects. Since self-concept of ability, as used here, is more narrowly defined as the students concept of his academic ability, we examined its relation to a more general self scale and the correlation of each with school achievement.[95]

The correlation between the general self-esteem scale and self-concept of ability was .31. Although the more general index is significantly correlated with school achievement nearly all of this is accounted for by variation in self-concept of academic ability. The latter is therefore apparently a more relevant variable in school performance.

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[95] The self-esteem scale developed by Morris Rosenberg was used as the criterion for a general self-concept. See Morris Rosenberg, Society and the Adolescent Self-Image, 1965, op. cit.

Experiments Designed to Enhance Self-Concept of Ability and Achievement

In order to assess possible delayed reaction to experiments designed to enhance self-concept of ability and through this school achievement, a follow-up study of available students was carried out. Unfortunately, transfers and drop-outs reduced the number of students who had been involved in the experimental, placebo and control groups during the ninth grade so much that it was not feasible to make a definitive analysis of the impact of experimental treatments during the 11th and 12th grades. There is, however, no evidence of any significant delayed reaction to the experiments.

Conclusion

It seems safe to conclude from this longitudinal study and the related research that there is substantial support for the basic hypotheses derived from the more general social psychological theory of school learning. Although the evidence is not always as definitive as one would like to base a theory upon, this extensive research program has not provided any basis for rejecting the theory. Rather, substantial support has been produced.

Much remains to be done before the general theory is substantiated satisfactorily. For example, we have contributed little to our knowledge about how the social norms or the expectations of significant others affect school achievement. Our research indicates that others' evaluations affect the student's conception of his academic ability and thus sets limits on his school achievement, but many students who have high self-concepts of ability do not have commensurate achievement. The analysis of the social psychological process by which those who conceive of themselves as able to learn are motivated or stimulated to do so remains to be investigated.

Although one treatment in the earlier experiments showed some promise of success[96], we have little knowledge about what social environments will produce either changes in self-concept of ability or the motivation to behave in accord with the maximum limits of that ability. The creation of social environments which will result in maximum levels of learning is a major challenge to contemporary educators and behavioral scientists.

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[96] See Brookover, et. al. Self-Concept of Ability and School Achievement II, 1965, op. cit. for results of the experiments in 9th and 10th grades.

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PART II

RELATED STUDIES

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INTRODUCTION TO RELATED STUDIES

During the more than seven years that this research has been in progress a number of people have been involved to varying degrees. Several of these people have carried out specific research projects relevant to the general purposes of this research program. Some of these are based entirely on data from the larger project while others have obtained additional data to test hypothesis relevant to the general theory. Rather than review these studies in Part I of this report, we have asked each of our colleagues to provide summaries of their research for publication in this report. The chapters which follow are, therefore, summaries of these related studies.

The studies reported here have varying relevance to the major project, but all contribute to our knowledge in the general area of this research. The first by Ann Paterson summarizes a careful study of the validity and reliability of the self-concept of ability scale which has been used as the measure of a major variable in this research program. A less elaborate analysis was reported in the first report in this series, but Chapter VII summarizes the results of the various analyses of validity and reliability.

In Chapter VII Lee Joiner summarizes the analysis of the validity and reliability of a self-concept of ability scale adapted for hearing impaired students. Although this is not directly concerned with the research reported in Part I, it grew out of the major project and provides a basis for similar research with handicapped students. A similar scale is being used by Dr. Edsel Erickson in a study of blind students' self-concept of ability.

In Chapter IX Dr. Erickson summarizes his analysis of the influence of parents' and friends' expectation on self-concept of ability and achievement of the students in this study. He introduced the concept of surveilance as an additional factor in the forces influencing student behavior and further developed the theoretical framework for the research in this study.

Dr. Richard Morse analyzed self-concept and achievement data obtained from the Negro students in the school class studied during the eighth grade and compared this with the white students. This is summarized in Chapter X. The following chapter by Dr. Morse is also based on data obtained in the larger study. In this the contribution of self-concept of ability and other social-psychological variables to the relation between socio-economic status and school performance is examined.

The three studies reported in Chapters XII, XIII and XIV were stimulated by the major project but make contributions that were not anticipated in the design. The first of these by David Haarer replicates the first of this series of studies for delinquent boys and compares them with a non-delinquent sample from the population for the major project. The second by Kenneth Harding investigates whether or not the self-concepts of ability of those students who dropped out of school differed from the self-concepts of a comparable sample of their classmates who remained in school. In Chapter XIV Dr. Carl Sandeen analyzes the educational aspirations of the boys in our longitudinal sample and the relation of self-concept of ability to their aspirations.

Dr. Richard Towne examined the effect of placement of educable mentally retarded students in special classes on their self-concept of ability and other social-psychological variables. Although this study was not directly concerned with the major project, it has relevance for understanding the school context within which self-concept of ability may be changed.

In Chapter XVI Natalie Sproull, who served the project in various roles, reports on the development of a scale to measure the self-concept of teaching ability. This is not a part of the major project but developed out of Mrs. Sproull's association with it.

The final chapter by associates on this project analyzes the relation of the educational plans of students in the larger study to the educational expectations which they perceive others hold for them. It provides further evidence of the relevance of the social-psychological theory tested in this research program.

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CHAPTER VII

RELIABILITY AND VALIDITY OF SELF-CONCEPT OF ABILITY SCALE*

Ann Paterson
University of West Virginia

Introduction

In 1961 Ruth C. Wylie's book The Self Concept: A Critical Survey of Pertinent Research Literature was published.[1] After collecting much of the research literature on self-concept and evaluating the methodology of the various studies, the author concludes that "the total accumulation of substantive findings is disappointing, especially in proportion to the great amount of effort which obviously has been expended."[2] She offers four reasons for this situation:[3]

1) the lack of proper scientific characteristics of the theories themselves;

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[1] Ruth C. Wylie, The Self Concept: A Critical Survey of Pertinent Research Literature (Lincoln: University of Nebraska Press, 1961).

[2] Ibid., p. 317.

[3] Ibid., p. 323.

*From Ann Paterson, An Evaluation of an Instrument Designed to Measure the Construct, Self-Concept of Academic Ability, Ph.D. Dissertation, Michigan State University, 1966.

2) the inevitable difficulties encountered in formulating relevent, well-controlled research in a new area;
3) the understandable fact that individual researches in a new area are not part of a planned research program and therefore cannot be easily synthesized; and
4) avoidable methodological flaws.

One of the suggestions made by Wylie for implementing more interpretable research is that limited theoretical self constructs be studied by means of more limited and well-analyzed measuring instruments which are shown to have behavioral correlates. Wylie argues that it is only by the careful collection of data at the molecular level that we can have an adequate base for drawing conclusions about the more global self constructs.

The present research is an attempt to analyze a self construct which is presumed to avoid some of the limitations noted by Wylie. The construct, "self-concept of ability," was theoretically derived from the symbolic interactionist framework of G. H. Mead and C. H. Cooley. A self-report instrument, the Self-Concept of Ability Scale, was devised and conventional reliability and validity checks were also made on the instrument. The relevent behavioral correlate to the "self-concept of ability" construct was academic achievement as indexed by grade point averages. The relationship of the construct to the behavioral criterion was examined in some detail.

That past and present achievement, I.Q. scores, and self-concept of ability scores are positively correlated follows from the assumption that self-conceptions are dynamic, and thus will have behavioral correlates. However, this is not to say that the three constructs are reducible to one. The partialling out of the effects of I.Q. or past achievement should not reduce the correlation of present achievement and self-concept of ability to zero. More important, where there is a discrepancy between past performance or I.Q. scores and present achievement, it is hypothesized that the self-concept of ability construct can explain the difference. Viewing self-concept of ability as a functionally limiting factor in achievement does not obviate the importance of past experience, nor invalidate the traditional relationship of I.Q. to achievement. Rather, the self-concept of ability construct helps explain why the traditional I.Q.-GPA relationship holds in general, and, furthermore, why it does not hold in some situations. The theoretical base for understanding intelligence and achievement is thus broadened.

Methodology

Because the literature revealed no existing instrument designed to tap self-concept as a learner, it was necessary that the research staff of Project #845 construct its own scale. The staff and panel of consultants considered the conceptualization of the self dimension to be tapped, and submitted whatever items they believed would be consistent with the theory. The resulting list of items was administered in the Spring of 1959 to a classroom of seventh-grade students in a neighboring town for whom grades were available. The items were examined to determine whether they actually differentiated students on achievement. Modifications in content and format were rendered as a result of this preliminary testing, and a list of 16 items was selected for a formal pretest.

The pretest of the SCA Scale was a part of an interview conducted with a sample of 49 students who showed differential achievement patterns relative to ability. The base population from which these 49 students were selected consisted of one-third random sample (N=425) of the 1959-60 seventh-grade students in Oldtown. School records provided IQ, achievement, and social class data. Students falling within one standard error of measurement on either side of the mean IQ (two nonverbal scores averaged) and GPA (4th, 5th, and 6th grades averaged) were eliminated from the population. The 49 students interviewed came from four achievement groups ("over-achievers," "under-achievers," "high-achievers," and "low-achievers") and each group represented a particular social class level. There were 16 "over-achievers" (nine females and seven males); 15 "under-achievers" (six females and nine males); five "high-achievers" of each sex, and four "low-achievers" of each sex.

The interviews of these students, each approximately 1½ hours, were conducted at Michigan State University, and covered a variety of subjects relevant to Project #845. At the beginning of the interview, the subjects were asked to complete the written pretest of the SCA Scale consisting of 16 items.

Analysis of the pretest items consisted of item analysis and Guttman scaling. Items with less than .50 point biserial correlation with the total score were eliminated. The resulting items were subjected to Guttman scalogram analysis following the procedures outlined in Goode and Hatt.[4] Some items in the scale were found to operate in virtually the same manner as other items when scaled. Such duplications were eliminated, using item content as the primary criterion for elimination. The remaining eight items formed a Guttman Scale with a .91 coefficient of reproducibility. In these analyses the responses of males and females were combined.

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[4] William J. Goode and Paul K. Hatt, Methods in Social Research. (New York: McGraw Hill, 1952), Chapter 17.

It should be noted that for the pretest, the average of two nonverbal IQ scores was used in the classification of students. This was done on the assumption that the nonverbal scores would be more culture-free. However, correlation analysis of the 4th and 6th nonverbal and the 4th and 6th total IQ scores indicated that the test-retest reliability was significantly higher for the total scores than for the nonverbal. For this reason the total scores were used in the final study for selection purposes.

The pretest results reassured the research staff of the feasability of tapping self-concept as a learner with a paper and pencil test. Subsequently, a full-scale administration of the Scale to all of the seventh graders in the Oldtown public school system was accomplished in the Fall of 1960. The 7th grade level was selected because the students were presumed to be mature enough to understand the questions, and yet naive enough to answer them honestly. Junior high school students also have different teachers for different subjects and thus would be expected to make the specific subject distinctions which were important for getting at specific subject self-concepts.

Of the 1930 7th graders in Oldtown, data from 1050 were selected for testing the major hypotheses. The 1050 represented all non-negro students (the approximately 100 Negroes were separately studied at a later time) who had been in the school system at least two years and for whom there was complete background data, particularly, two IQ tests and some social class data. Unless otherwise indicated, all data reported here came from the 1050 students consisting of 513 males and 537 females.[5]

Analysis of the SCA items for the Fall 1960 testing again consisted of Guttman scalogram analysis which yielded reproducibility coefficients of .95 and .96 for the 513 males and 537 females respectively. The response categories for the eight items composing the Guttman scale were dichotomized.

Guttman scaling provides scores called scale types which correspond to the number of items "right" (in this case, item responses in the top half of the dichotomy). The scale type score range is equal to the number of items, in this case eight. Because a larger score range was desired, Guttman scale type scores were compared with scores obtained by conventional summing procedures. Values from 5 to 1 were assigned to response categories "a" through "e" and the resulting values were summed. The potential score range in this procedure is 40 points. For comparison, the two sets of score were each correlated with GPA, the dependent variable in the study. As the correlations were almost identical, use of the more convenient summative scores appeared warranted. Guttman scale scores were not used in any subsequent analysis.

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[5] Editors Note: The analysis in this chapter are based on data obtained from the students in the larger study when they were in the seventh grade. Portions of the analysis have been repeated in subsequent years.

In addition to the SCA scale, there were four self-concept of ability scales used in Project #845. Each of these scales had a specific subject reference and thus is referred to as the Specific Self-Concept of Ability Scale. These scales are not theoretically derived, but were intentionally parallel versions of the SCA Scale.

The Specific SCA Scales were checked to determine if the items would scale in a fashion parallel to the general SCA Scale. The items did scale in parallel fashion except at the extremes where the two sets of extreme items could not be differentiated. Only one specific subject scale (Arithmetic) was actually analyzed for a reproducibility coefficient and it was above the required level of .90. As the specific subject scales correlated with specific subject achievement in the anticipated fashion, no further analysis of these scales was undertaken. Although there is reason to believe that the specific subject scales are directly parallel to the SCA Scale, it would be unwarranted to assume that the establishment of validity and reliability for the SCA Scale will generalize to the specific subject scales.

Findings

1. The SCA Scale scores are positively and significantly correlated with grade achievement. ($^{r}12 = .57$) This is true even when IQ (as measured by test scores) is held constant.

2. Scores on the SCA Scale are not reducible to IQ scores or to grade achievement scores.

3. Scores on the SCA Scale are significantly and positively correlated with grade achievement under conditions of a known negative correlation between IQ scores and grade achievement.

4. For both males and females a combination of high achievement and low SCA Scale scores is significantly less likely to occur than is the combination of high SCA Scale scores and low achievement. This is taken as evidence that a high self-concept of ability is a necessary but not sufficient basis for high achievement. This conclusion is dependent, however, upon the cut-off points used in designating "high" and "low" groups on each variable.

5. Evidence suggests that SCA Scale scores for this age level are geared to achievement relative to a sex group rather than to an absolute (particular grade point index) level of achievement.

6. The more extreme the cut-off points used on the SCA Scale and GPA, the more closely the number of cases of low GPA and high SCA or high GPA and low SCA approaches zero. This is taken as evidence to support the general positive relationship of self-concept of ability and grade achievement.

7. The specific SCA Scales are positively and significantly correlated with achievement in parallel subjects. This is true even when IQ (as measured by test scores) is held constant. This is taken as evidence that the Specific SCA Scales are related to achievement in a manner analagous to the relation of SCA Scale scores with general GPA.

8. The general SCA mean scores are higher than any of the Specific SCA scores but the general score is closest to the specific score in that subject in which the student has his highest achievement. This suggests that general SCA is more heavily influenced by areas of strength than by areas of weakness.

9. Girls are significantly more likely to be "uniform" achievers than "nonuniform" achievers as these terms are defined in the research. Males tend to be equally "uniform" or "non-uniform" achievers. This suggests different cultural expectations for achievement by sex.

10. Among "non-uniform" achievers of both sexes, the Specific SCA Scales were, with one exception, significantly better predictors of achievement in the parallel subject than was the general SCA Scale. This tendency, however, was much more conspicuous for females than for males.

11. Among female "uniform" achievers, the general SCA Scale is a significantly better predictor of specific grade achievement than are the Specific SCA Scales in all subjects except social studies. Except in English this is not true for males. This suggests that sex differences are operating.

12. Females who are "non-uniform" achievers have significantly lower mean SCA and GPA scores than do female "uniform" achievers. There are no such differences observable for male "uniform" and "nonuniform" achievers. Again sex differences appear to be operating.

13. A theory is proposed to account for the sex differences

observed. Namely, nonuniform achievement is generally culturally defined as negative for females while "non-uniform" achievement is, in fact, encouraged for males.

14. The general SCA Scale is a better predictor of achievement in a specific subject than is any Specific SCA Scale other than the one in the parallel subject. In 17 of the 24 comparisons, the differences are significant; in all cases, findings are in the predicted direction.

15. The general SCA Scale is a better predictor of general achievement than is any Specific SCA Scale. In five of the eight comparisons, the differences are significant; in all cases findings are in the predicted direction. This finding, together with Conclusion 14 is evidence that the general SCA Scale is not reducible to any of the Specific SCA Scales.

16. All of the intercorrelations among the Specific SCA Scales scores are higher for males than for females, but the intercorrelations among specific subject grades earned are higher for females than males.

Other indices of validity and reliability were also used in the evaluation of the SCA Scale. The results of these investigations follow:

17. The SCA Scale is considered to have content validity because the method of selection of the items can be considered a comprehensive sample of the construct under consideration.

18. The correlation of SCA scores obtained in the fall of 1960 with grades obtained in January 1961 is .57 for each sex.

Corrected for attenuation, the correlations become .60 and .59 (males and females respectively) or accounting for 36% and 35% of the variance.

19. When Fall 1960 SCA scores and an average of fourth and sixth grade IQ scores were compared in their ability to predict January 1961 achievement, the calculated beta weights for the two variables were .37 (SCA) and .44 (IQ) for the males; and .34 (SCA) and .49 (IQ) for the females. IQ is more heavily weighted in the prediction. The multiple correlation of IQ plus SCA to predict achievement gives multiple correlation coefficients of .69 (males) and .72 (females), or, the combination of variables accounted for 48% and 52% of the variance for male and female achievement.

20. A cross-validation of the prediction equation used a combination of IQ and SCA scores to predict June 1961 achievement (an additional six month's time beyond that used in calculating the prediction equation). The cross validation population was drawn from the same school system, but included persons who had been eliminated from the main study by virtue of race or incomplete data. The correlation between predicted and obtained GPA for the cross validation population were .71 (males) and .70 (females). These values, when compared with the multiple correlations (see Number 19), suggest that the original prediction equation does not capitalize on chance factors but accounts for real and stable variance.

21. The stability reliability coefficients of the SCA Scale for a 12-month interval are .75 and .77 for males and females

respectively. These figures are difficult to interpret. Although self-concept of ability is assumed to be more stable than unstable, it is also assumed that self-concept of ability can change. It is suggested that stability reliability coefficients should be used in combination with other reliability indices in view of the difficulties in estimating the expected degree of instability of self-concept of ability for individuals.

22. The SCA Scale was originally constructed in order to form a Guttman scale which requires reproducibility coefficients above the .90 level. The actual reproducibility coefficients were .95 (males) and .96 (females) for the samples under study. The existence of a Guttman scale suggests that all of the items are from the same universe of content, and that they are of unequal difficulty given the specific bases for dichotomizing responses to the items.

23. The Hoyt method of determining internal consistency reliability yielded coefficients of .82 and .84 for the total samples of 513 males and 537 females.

24. The McQuitty technique of cluster analysis of SCA Scale items resulted in two clusters of items for each sex; however, the clusters were not the same for the two sexes. These findings are somewhat questionable because the correlations of items within clusters were not significantly different from the correlations between items in different clusters. Results such as these are an artifact of the method which considers only the highest correlation of an item with other items.

25. Because of the ambiguity of the results in the cluster analysis (Number 24), a centroid factor analysis was run on the SCA items. Two factors were extracted, the second barely meeting the requirements of a non-error factor. The first factor was interpreted as the Self-Concept of Ability factor and produced strong factor loadings on each item (the lowest loading was .53, the highest .72). This is considered to be evidence of the basic homogeneity of the scale (consistent with findings of Guttman scaling). However, a minor second factor was found with loadings ranging from .06 to .40. This factor was interpreted as the time dimension which had been postulated by logical analysis (see Number 27 below).

26. A logical analysis of item content has suggested that various subsets of items were asking slightly different questions. Correlations between subset and total SCA scores indicated that each subset correlated with the total score at .85 or better, again emphasizing the basic homogeneity of the scale. The subsets dealt with future-versus present-oriented items, and with comparative-versus-absolute evaluations of ability.

27. Consistent with the findings of a secondary time dimension in the factor analysis, the subscore from the four future-time-oriented items correlated only .61 with the subscore from the three present time oriented items. The subscores from the absolute and comparative evaluation items correlated only .59 (males) and .64 (females) with each other. The latter correlations which are unexpectedly low and not consistent with other results

may, however, result from contamination by the time dimension noted above. Evidence for this found in the significantly higher correlations between future and absolute subsets than between future and comparative subsets. Present-oriented items as a subset are more highly correlated with comparative evaluation, although not significantly so.

28. In predicting GPA, the present-oriented (and absolute) evaluation subsets were significantly better predictors than their theoretical opposites. It was hypothesized, however, that for future projection of achievement the future-oriented evaluations might be more predictive.

29. Individual item examination was done by means of a correlation matrix comparing the individual items in their relation to the total SCA score and GPA. The individual items which correlate most highly with the total SCA score are items four and five. These two items also have the highest factor loadings on factor I, as would be expected. Again, as is consistent with the factor analysis, none of the item-total correlations fall below .59; only two are below .65.

30. Individual items varied considerably in their ability to predict GPA. The single best item is item eight (What grades do you think you are capable of getting?). This one item predicts achievement as well as the full SCA Scale. The poorest predictors of achievement for each sex are items three, four, and six, all future-oriented items.

Conclusions

The cumulative evidence from research employing the Self-Concept of Ability Scale suggests that it is able to predict accurately theoretically-derived relationships suggested by the symbolic interactionist framework. Use of the SCA Scale allows prediction of criterion behavior over time. There is evidence that scores from the Scale are not reducible to IQ scores, past or present achievement, or student attitudes toward the importance of securing good grades. The Scale is able to discriminate general self-attitudes toward ability to achieve, from self-attitudes toward ability to achieve in specific school subjects.

Guttman scalogram analysis, factor analysis, and individual item analysis all affirm the basic homogeneity of the Scale with respect to content, although a minor time dimension was found in factor analysis which distinguished present-oriented from future-oriented items. This time dimension was particularly functional in the prediction of the criterion grade point average; GPA (at the next grading period) was more adequately predicted by present-oriented items.

It may appear somewhat inconsistent to assume that a scale has internal homogeneity and yet that the items are not equally able to predict a criterion. The problem is the type of homogeneity one is considering. There is an essential difference between the homogeneity of a compound and of an element. All samples of the compound may be like all other samples, and yet the compound is ultimately composed of different elements. By analogy, self-concept of ability may be consistently viewed as homogeneous and yet contain a known time dimension that is operating. For prediction purpose one type of homogeneity may be more relevant than another. It is suggested here that the criterion of grades earned in the near future is best predicted from the present-oriented "elements" of the Scale, while long-range achievement may be better predicted from the future-oriented "elements." The criterion measure must be considered homogeneous in an equivalent manner.

Despite the general positive results obtained from use of the SCA Scale, our knowledge is incomplete concerning this measuring instrument. In particular, we do not know the influence of social desirability, instrument form, or response restrictiveness on results when using the Scale. An equally serious problem exists in the examination of the psychological relevance of scoring procedures. Perhaps the most serious deficiency is the inability to demonstrate that results from use of the Scale are not method-tied. There is no independent measure of the self-concept of ability construct to allow such evaluation. A related problem is that the results may be criterion-tied. Grade point average is the only criterion that has been systematically examined to date; whereas other achievement indices should also be studied.

It is obvious that the need exists to articulate the present research findings with other measures of self-concept--particularly self-conceptions about ability in other than academic areas. Such articulation will serve to demonstrate empirically how broad a construct is tapped by the SCA Scale in the same manner as the analysis of the specific subject scales demonstrated how narrowly the results using the Scale should be interpreted.

Until there is empirical evidence regarding the probability of change in academic self-concept (change induced by other than experimental intervention), the adequacy of the stability reliability of the instrument cannot be determined. Also, further study should be effected to determine if the internal consistency reliability could be increased profitably by modification in the Scale itself. Possibly, the elimination of one or more items would be necessary. Logic suggests that item seven should be removed from the Scale; but empirical evidence supports its inclusion. It is quite possible that item seven functions effectively because of the level of the students; that is, junior high school students simply do not discriminate between performance and potential for performance. It may also be true that this distinction exists primarily in the minds of the test constructors and is not important to the general public.

Incompleteness in our knowledge also stems from the failure to use this instrument with other age groups. While there is no reason to believe that the SCA Scale could not be satisfactorily modified for use with a variety of age levels, this has not been systematically demonstrated. In addition, while there is some evidence that the Scale can be utilized effectively across different IQ and social class level, detailed analysis by sub-group has not been made. There is, however, ample evidence to suggest that all analyses using the Scale should be done separately for males and females.

CHAPTER VIII

THE SELF-CONCEPT OF ACADEMIC ABILITY SCALE-FORM D FOR HEARING IMPAIRED STUDENTS: A RELIABILITY AND VALIDITY STUDY*

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Hofstra University

Introduction

In a report to a national conference, Research Needs in the Vocational Rehabilitation of the Deaf (1960), sponsored by Gallaudet College and the U. S. Office of Vocational Rehabilitation, the development of instruments for measuring social psychological factors was given high priority.[1] It was agreed that instruments are needed to study parental attitudes as related to educational attainment, attitudes toward self, aspiration levels, vocational interests, the status of the family, etc.[2] Furthermore, members of the conference stressed the need for instruments which would yield comparable data from both impaired and non-impaired populations: "Existing tests could be used or modified, and tests specifically for the deaf could be constructed where necessary."[3]

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[1] Merril Rogers and Stephen Quigley (eds.), "Research Needs in the Vocational Rehabilitation of the Deaf," American Annals of the Deaf, CV (Sept., 1960), 355-370.

[2] Ibid.

*From Lee M. Joiner, The Reliability and Construct Validity of the Self-Concept of Ability Scale-Form D For Hearing Impaired Students. Ph.D. Dissertation, Michigan State University, 1966.

Traditionally, comparisons of sociological, psychological and social-psychological data secured from impaired and non-impaired populations have not been possible because of differing instruments, populations, theories, designs, and definitions. The seriousness of this problem has been noted by many scholars from the several areas of special education.[4] This problem is also viewed as significant by scholars from the disciplines of sociology and psychology.[5]

The basic problem in developing instruments for use with the hearing impaired results from the language and communication deficiencies manifested by this group. If we design an instrument to measure a social-psychological construct, the language or concept included in the item may be incomprehensible to the hearing impaired student. Error variance is therefore increased and our ability to reach conclusions is hindered. Conversely, if we design an instrument strictly in terms of the limitations of the exceptional child, i.e., tamper with the wording and presentation of items, we have no assurance that this instrument will yield comparable and valid data. Therefore, assessment of the reliability of modified instruments becomes the first necessary stage in social research with the hearing impaired.

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[3] Ibid.

[4] Beatrice Wright, Physical Disability--A Psychological Approach (New York: Harper and Row, 1960); Lee Meyerson, "Physical Disability as a Social Psychological Problem," Journal of Social Issues, IV (1948) 2-10; Samuel Kirk, "Research in Education," Mental Retardation: A Review of Research, eds. Harvey Stevens and Rick Heber (Chicago: University of Chicago Press, 1964); Maynard C. Reynolds, "The Social Psychology of Exceptional Children: Part III in Terms of the Interaction of Exceptional Children with Other Persons," Exceptional Children, XXVI (1959), 243-247; William Geer and Evelyn Deno, "CEC and Legislation--New and in the Future," Exceptional Children. XXXII (Nov., 1965), 187-194.

[5] Irving Goffman, Stigma: Notes on the Management of Spoiled Identity (Englewood Cliffs: Prentice Hall, 1963); Wilbur B. Brookover et. al. Relationship of Self-Concept to Achievement in High School U. S. Office of Education, Cooperative Research Project No. 2831 (East Lansing: Michigan State University; 1966.

Method

The major instrument in the Brookover studies of the relationship of self-concept of academic ability with academic achievement has been the Michigan State University General Self-Concept of Academic Ability Scale (GSCA). It is an eight item Guttman-type scale which has been subjected to a thorough reliability and validity analysis presented in another section of this report.

Development of an alternate form for use with hearing impaired subjects involved modifying the language of the eight items in such a way that they could be directly translated into manual signs. An easy reading vocabulary level was also desired since some subjects were expected to need the double reinforcement of the printed word and the sign. By developing the scale with these two criteria in mind it was hoped that the likelihood of obtaining meaningful responses would be increased. Similar alterations were also performed on other scales. The characteristics of these scales, however, are not the subject of the present study.

Future reports will be addressed to the reliability and validity of the other measures.

In November 1965 the first group of subjects was randomly selected from among the senior class of all high schools (3) in a midwestern city where mass testing was being undertaken as part of U. S. Office of Education Cooperative Research Project #2831. The testing took place in each of the three high schools and was completed within a period of three weeks. In addition to the major questionnaire, the Self-Concept of Academic Ability Scale-Form D was randomly distributed to nearly 100 Caucasian students in three high schools. Out of a total group of approximately 1,500 students tested under the major project design, 97 were selected as subjects in the present study. Table 8.1 shows the mean self-concept of ability score and grade-point average for this group

TABLE 8.1
IQ, SELF-CONCEPT OF ACADEMIC ABILITY, AND GPA:
CHARACTERISTICS OF THE DISTRIBUTIONS
FOR HEARING-IMPAIRED AND NON-IMPAIRED

	(Test # 2) Hearing Impaired (N=80)			Non-Impaired (N=97)	
Statistic	IQ	SCA-D	GPA	SCA-D	GPA
Mean	106.6	18.34	2.25	18.99	2.22
SD	11.5	3.34	.77	2.96	.72
Skewness	-0.02	.24	-.03	.08	.43
Kurtosis	.04	.17	.04	-.15	-.04

along with standard deviations and the distribution characteristics of each variable. Hereafter, the above sample will be referred to as the "Non-Impaired High School Seniors."

In December, 1965, testing was undertaken at the Indiana School for Deaf at Indianapolis, Indiana. Due to the fact that serious questions were raised as to the feasibility of mass testing some of the low-achieving hearing impaired students, it was decided that random sampling of the resident population would not be undertaken. Instead, all of the residential students in grades 8 through 11 who were in academic sections (programs) were tested en masse.

A total of 81 subjects were tested in the first session. In the second session 85 subjects were tested of whom 80 had previously been tested. Test-retest analysis, therefore, show an N of 80 subjects, while scale analyses show an N of either 81 or 85 subjects. Of the 80 subjects used for the correlational analysis 50 were male and 30 female. Only three of the subjects were Negro and therefore were not excluded from the analyses. If a large number of Negro subjects were present it would have been necessary to treat them separately in the analysis since Morse found major differences between Negro and Caucasian students on self-concept of ability.[6]

Instruments were administered twice to this group with a test-retest interval of six days. Hereafter, the above population shall be referred to as the "Hearing Impaired Students-Test #1" or "Hearing Impaired Students-Test #2." The mean self-concept of academic ability scores, IQ, and GPA are presented in Table 8.1 along with standard deviation and distribution characteristics of the variable.

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[6] Richard J. Morse, "Self-Concept of Ability, Significant Others and School Achievement of Eighth Grade Students: A Comparative Investigation of Negro and Caucasian Students," unpublished M.A. thesis, Michigan State University, 1963.

The subjects responded to a questionnaire composed of several scales, but only three are considered here: 1) Self-Concept of Academic Ability (SCA-D); 2) Perceived Parental Evaluations of Ability (PPEV-D); and 3) Perceived Teacher Evaluation of Ability (PTEV-D). Two additional variables were dealt with in the validity analysis; grade point average and intelligence. Grade point average represented an average of the subject's grades in social studies, English, science, and math for spring, 1965, and fall, 1965. Letter grades were utilized in reporting academic level at the Indiana School for the Deaf so a numerical code was assigned to each letter grade: E = 0, D = 1, C = 2, B = 3, A = 4.

In some cases grades were available in all four subjects for both spring and fall. Frequently, however, grades were available for less than four subjects, or grades were available for social studies and English in the spring, and English and math in the fall. A necessary, but limiting, compromise was to average the numerical values for all reported grades over these two report periods. In other words, grade point average might be based on eight marks for some students and three marks for others.

Intelligence was measured in most cases by W.I.S.C. or Chicago test scores. In all cases the tests had been administered by a diagnostician or psychologist associated with the Indiana School for the Deaf. Test scores were less than two years old in nearly all cases. The vast majority of tests had been given in 1965.

All scales were administered *en masse* to the deaf students by using signs and finger spelling communicated by a single proctor on a podium before the group. Four proctors were present to aid in interpretation in case of difficulties. Some changes were introduced in procedures for second testing as a result of problems noted during the first session.

Findings

The Equivalence of the SCA and SCA-D Scales

The Pearson Product Moment Correlation between scores for the non-impaired subjects on the Self-Concept of Academic Ability and Self-Concept of Academic Ability-Form D scales was .75. This coefficient was obtained using the total (N = 97) group. A separate analysis of males (N = 49) and females (N = 48) disclosed no difference in correlations for these groups. The coefficient of equivalence was .762 for males and .756 for females. Table 8.2, page 180, shows, however, that high school "One" results functioned to lower the overall coefficient of equivalence.

In high school one a correlation of .513 appeared. Squaring this coefficient yields an index of determination of .26, meaning that 26 percent of the variance in either SCA or SCA-D

TABLE 8.2
DEVIATE CORRELATIONS BETWEEN RESPONSES OF NON-IMPAIRED SENIORS TO SCA AND SCA-FORM D SCALES
(THREE HIGH SCHOOLS)

	High School #1 (EV) N = 22	High School #2 (S) N = 39	High School Combined #3 (E) N = 36
r	.513	.842	.805
r^2	.260	.709	.648

scores is associated with, or predictable from measures of either variable. In high schools Two and Three between 65 and 71 percent of the variance of scores on either of the two scales is associated with or predictable for measures of the other one. Although post facto explanations of observed phenomena have little scientific merit, it should be parenthetically noted that mass testing problems were encountered in high school "One." Only one class period was available for testing purposes and there was little time left when the students commenced the SCA-D items. A larger error factor may have been introduced because of the necessity for hurrying through the scale.

Another consideration in establishing the equivalence of the two forms is the shape of their respective distribution of scores. Table 8.3 shows the means, standard deviations, standard error of measurement, skewness, and kurtosis for the SCA and SCA-D scales. Mean comparisons were not made because of differing scoring procedures for the two instruments.

TABLE 8.3
MEANS, STANDARD DEVIATIONS, SKEWNESS, AND KURTOSIS
OF THE SELF-CONCEPT OF ACADEMIC ABILITY SCALE
AND THE SELF-CONCEPT OF
ACADEMIC ABILITY SCALE-FORM D

Statistic	Scale	N = 97
	SCA	SCA-D
Mean	27.330	18.610
SD	6.910	2.970
S_{em}	.3455	.1188
Skewness	.149	.001
Kurtosis	.080	.030

A skewness index of .149 for the SCA scale and of .001 for the SCA-D scale indicates that the score distributions were nearly symmetrical, with the SCA score showing a slight positive skewness, i.e., measures piling up slightly toward the lower values and the upper tail extended.

Kurtosis indices for the SCA and SCA-D were .08 and .03 respectively. Values of this order describe a mesokurtic distribution, i.e., the "normal" or Leplace-Gaussian probability curve. Thus, it is concluded that self-concept of academic ability, as measured by both instruments, approximates a normally distributed variable.

Stability of Measurement

Test-retest correlations (Pearson Product Moment) were calculated in order to determine the stability of the SCA-D responses. These test-retest correlations are likely to be minimal estimates since changes were introduced in the format and presentation during the second testing. A more specific purpose of assessing the test-retest stability is to obtain some indication as to whether or not the questions were understood by the hearing impaired subjects. It is assumed that if the items were not understood, correlations between scores obtained at separate times would be low. High correlations would indicate response consistency and therefore "understanding" of the items.

The findings presented in Table 8.4 illustrate that the correlation, between scores on test 1 and test 2, over a six day interval, for the hearing impaired is .84. The coefficient of determination, $r^2 = .71$, indicates that 71 percent of the variance of scores on test 2 is predictable from test 1.

TABLE 8.4
TEST-RETEST CORRELATIONS FOR SCA AND SCA-D SCALES:
HEARING IMPAIRED AND NON-IMPAIRED SUBJECTS

Scale	Hearing-Impaired (N=80)	Non-Impaired (N=466)		
	Test-Retest Interval	Test-Retest Interval		
	6 days	7th-8th Grade	8th-9th Grade	9th-10th Grade
SCA		.65	.74	.72
SCA-D	.84			

All r's significant beyond the .05 level.

Table 8.4 also shows the test-retest correlation over one year periods for the non-impaired (7th-8th grade, 8th-9th grade, 9th-10th grade). These test-retest correlations were used as stability measures of the original (SCA) instrument. The correlation (.65, .74, and .72) are lower than the correlation obtained for the hearing impaired. This is as expected since some change in self-concept of academic ability is likely to occur during a one year period.

Reproducibility of the SCA-D

Reproducibility concerns the pattern of item scores obtained on a test and the total score. A test is said to be reproducible if knowledge of a subject's total score allows us to predict, within certain limits of error, the way the subject responded to each item in the test. Usually, a test's high reproducibility is evidence of its unidimensionality. A test which is unidimensional measures a single factor, attribute, or skill.

Table 8.5 shows that the reproducibility value which would be obtained with the present data if the items retained their present

TABLE 8.5
GREEN'S REP_{IND}, REP, (I),
AND STANDARD ERROR OF REP FOR THE SCA-D SCALE:
HEARING IMPAIRED AND NON-IMPAIRED SUBJECTS

Population or Sample	Green's Rep_{ind}	Green's Rep	Rep***	Green's (1)	N
Non-impaired high school seniors	.879	.941	.0085	.512	97
Hearing-impaired test # 2	.846	.915	.011	.448	85

***

$$Rep = \sqrt{\frac{(1-Rep)\ (Rep)}{NK}} \qquad I = \frac{Rep - Rep_{ind}}{1.00 - Rep_{ind}}$$

difficulties but were independent (i.e., exhibited zero covariance) would be .879. This value, referred to as $\mathrm{Rep}_{\mathrm{ind}}$, in the Table, was calculated on the basis of the non-impaired students' responses to the SCA-D scale. The reproducibility value (.941), significantly exceeds the $\mathrm{Rep}_{\mathrm{ind}}$ value (.879) since the standard error of Rep is .0085.

The (I) value, whose formula takes into account both the obtained reproducibility coefficient (Rep) and the reproducibility coefficient which would be obtained if the items were independent ($\mathrm{Rep}_{\mathrm{ind}}$), was .512.

Green[7] has suggested that an I of .50 or better should be obtained before the items can be considered homogeneous.

The results with the hearing impaired contained in Table 5 are not as good as the results obtained with the non-impaired. $\mathrm{Rep}_{\mathrm{ind}}$ equalled .846 with a Rep of .915. Both of these values are slightly lower than those obtained with the non-impaired. The standard error of Rep was .011, indicating that the reproducibility value (.915) significantly exceeds the $\mathrm{rep}_{\mathrm{ind}}$ value (.846). The (I), or summary statistic, however, showed a value of .448 which is lower than the value of .50 suggested by Green.

Item Evaluation

One principle for item evaluation is that each item should be homogeneous with the total test. A condition of item to test homogeneity exists when subjects who pass a given item have higher total scores than those who fail it. Complete absence of homogeneity of items to test has been called "heterogeneity" and occurs when the total scores of subjects passing an item are randomly distributed along the ordered (high to low) total scores. The Phi (ϕ_{it}) coefficient was used for purpose of item evaluation.

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[7] See Benjamin White and Eli Saltz, "Measurement of Reproducibility" Psychological Bulletin, LIV (March, 1957), 81-99.

Table 8.6 shows the Phi (ϕ_{it}) coefficients which were obtained in the item analysis. The null hypothesis, that the obtained Phi is not significantly larger than zero, was rejected for all items of the SCA-D for both impaired and non-impaired respondents.

TABLE 8.6
PHI (ϕ_{it}) COEFFICIENTS FOR EACH ITEM IN THE SELF-CONCEPT OF ACADEMIC ABILITY SCALE-FORM D
HEARING IMPAIRED AND NON-IMPAIRED STUDENTS

Subjects	Scale	1	2	3	4	5	6	7	8
Non-Impaired	SCA								
High School Seniors	Form D	.599	.568	.765	.759	.756	.617	.556	.703
N = 97									
Hearing-Impaired	SCA	.573	.639	.570	.558	.523	.773	.436	.401
Test #2	Form D								
N = 80									

It is concluded that each item is homogeneous with the total test.

Construct Validity

Five correlational hypotheses were tested. Each of these replicates hypotheses tested with non-impaired students. Briefly, the results of this analysis are as follows:

1. The Self-Concept of Academic Ability of hearing-impaired students is associated with school performance (previous GPA). $r = .32$ $p < .05$

2. For the hearing-impaired, Self-Concept of Academic Ability is associated with perceived parental evaluations of academic ability. $r = .50$ $p < .05$.

3. Perceived teacher evaluations of academic ability are associated with Self-Concept of Academic Ability among the hearing impaired. $r = .48$ $p < .05$

4. Self-Concept of Academic Ability is not associated with grade level for this group. $r = .04$ $p > .05$

5. The Self-Concept of Academic Ability of the hearing impaired is associated with measured intelligence. $r = .29$ $p < .05$.

6. Also, it was hypothesized and confirmed that the mean Self-Concept of Academic Ability of the hearing impaired is equal to the mean Self-Concept of Ability of the non-impaired.

Discussion

It should be remembered that the present research was a pilot study. The major purposes were to evaluate instruments and testing procedures. Few systematic attempts have been made to develop instruments which will yield comparable data for non-impaired and impaired subjects. And little attention has been given to questionnaire administration with hearing-impaired students. Therefore, the limitations of the research are inseparably connected with the implication for future research. In fact, the discovery of difficulties and deficiencies in instrumentation and testing procedures is the main objective of a pilot study. It is not designed to be the final word regarding the instrument. An improved study has already been proposed which takes into account the limitations of this one.

The first limitation of the present research is the hearing impaired sample. While the non-impaired group reported here was a random sample of all twelfth graders in an urban school system, the hearing impaired student sample was of known bias. These students were the very best in one residential school for the deaf and so a better sample might include all levels of academic performance in several residential schools. Probably hearing impaired students in public school programs should also be studied. Of course it would be necessary to analyze the two groups of students separately. Study of the "non-academic" students might show problems in instrumentation and procedures which are not yet apparent. Perhaps it is impossible to test, en masse, hearing impaired students who show very low academic performance. But an attempt should be made to determine whether or not reliable and valid responses can be obtained with the lower achievers. "Response set" may have spuriously increased the test-retest correlations since no control was provided for this in the present research. However, by designing items which are so ambiguous or difficult that understanding is precluded, an index of minimal test-retest correlation could be obtained. Although the expected (r) would be zero, response set might easily increase the expected correlation to some unknown values.

Not only is it possible that the test-retest correlations are spuriously high due to an unknown "response-set" factor, the reproducibility estimate may also be spuriously high due to the dichotomization of a three point response scale. Minimization of error is the rule followed when combining categories on an item but no explicit or rigorous decision rule has been developed. On these grounds it could be argued that the reproducibility of the scale is still questionable. Reproducibility obtained when a two-choice item is used should be compared with reproducibility obtained when a three-or five-choice response is dichotomized.

Because of the problem of treating item sampling error as systematic variance when the same form of a test is administered twice, an alternate form should be designed to be used in checking test-retest reliability. Also, the procedural innovations introduced in the second testing distinctly limited the usefulness of test-retest data in the present study. A better approach would include a separate session in which students learned to respond. Then, a second and third testing with alternate forms should be conducted and the data from these used in the analysis.

Since a major variable in the theoretical network of this study is future school achievement, the self-concept of ability-achievement relationship remains untested. Time and financial limitation made it impossible to obtain school grades subsequent to the determination of students' self-concepts of ability. Were it possible to obtain these grades, three important things could have been accomplished: (1) the correlation between self-concept of academic ability and future GPA could have been determined, (2) intelligence and other variables could have been controlled in the SCA-GPA relationship, and (3) a multiple prediction formula using IQ and SCA could have been developed for cross-validation on another sample. The latter would have been one approach to establishing the predictive validity of the scale.

The concurrent validity of the self-concept of academic ability scale also merits attention. The best means for examining this aspect would be to conduct extensive interviews with hearing impaired students. Specifically, the interviewer should attempt to bring forth self-statements of academic ability with some probing being made in the direction of self-other comparisons. Recorded protocols should be evaluated and scored, then compared with later information on the same subjects obtained through use of the self-concept of academic ability scale.

Although the self-concept of academic ability has definitely not been conceived of as a "diagnostic" instrument, and incidentally should not be so used, another strategy for elaborating the general theory with the hearing impaired might take the following form. A subject who obtains a particular scale type score could be subjected to intensive attempts to raise those facets of self-concepts of academic ability on which he scores low. Rather than a non-focused or general enhancement of evaluation, an experimenter could work in the areas of observed low self-definition.

By so doing, it would be anticipated that both self-concept of academic ability and school grades would be more likely to increase than when non-specific methods are used.

Finally, standardization of the testing procedure should be developed. At this time it seems that a filmed "signing and saying" of the total questionnaire should be developed. A filmed presentation, along with an improved test booklet, would permit an extension of the research into a nationwide sampling of students for the deaf. A film, booklet, and standard instructional format would enable the testing to be carried out by untrained personnel in many schools. Costs would thereby become minimal and good data could be obtained.

CHAPTER IX

A STUDY OF THE NORMATIVE INFLUENCE OF PARENTS AND FRIENDS*

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What is the relative influence of parents and friends on the achievement level of high school students? In an attempt to answer this question, we developed a strategy for determining the impact on achievement of grade expectations (norms) held by parents and friends under varying conditions. These conditions are: 1) the perceptions a student has of the importance parents and friends attach to his carrying out their expectations of him, and 2) the student's perceptions of whether or not these others will be aware of his carrying out their expectations of him - i.e., perceived surveillance. The condition of high importance and high surveillance accompanying norms is defined as a "role obligation" situation.

This research is guided by the following general hypotheses: (1) academic achievement is less a function of adolescent sub-cultural relationships than of family relationships; and (2) conditions of perceived importance and surveillance attached to academic expectations by others account for variation in student performance levels.

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*From Edsel Erickson, A Study of the Normative Influence of Parents and Friends Upon Academic Achievement, Doctoral Dissertation, Michigan State University, East Lansing, 1965.

A focus upon perceived expectations from others stresses the theoretical proposition, seldom researched, that a student, in organizing his behavior, takes into account his perception of the way in which others view him. Also implied is the assumption that for most students academic achievement is a compliant act whereby they attempt to satisfy the preferences of others in order to maintain or gain certain desired social relationships. Hence conditions assumed to be necessary for compliancy, (i.e. importance attached to norms and surveillance) are pertinent to a study of educational achievement.

Methodology

Controlling for sex, measured intelligence, and achievement level, the population studied included all of the tenth grade Caucasian students from the three high schools of an urban school system on whom complete data was available. These students had been regularly promoted, and were not in a special education program. There were 942 students, 524 males and 517 females.

In order to gain a clearer understanding of the association of achievement norms with high and low achievement, we also identified students who had grade-point averages of two or more standard deviations below or above the mean (0.75 or lower and 3.5 of higher). In addition, the low achievers met the criterion of having scored no lower than one standard deviation below the mean on measured intelligence. By some definitions these low achievers would be classed as underachievers.

The major variables under analysis were: (1) academic achievement (total grade-point average in English, mathematics, social studies and science); (2) perceived academic achievement expectations of parents; and (3) of friends; (4) perceived importance attached to achievement expectations by parents; and (5) by friends; (6) perceived surveillance of students' academic behavior by parents; and (7) by friends; and (8) students' "academic significant others," (See Chapters I, II and III, Part I, for a discussion of the instruments and relevancey of determining significant others).

Measured intelligence data was obtained from student responses to the California Test of Mental Maturity, through the administration of questionnaires, and from the students' school records.

Research Findings

Achievement Norms Perceived of Parents and Friends:

1. As hypothesized, a greater proportion of friends than parents were perceived as being not concerned about the students' academic achievement. All 942 students, both males and females, indicated parental concern over their achievement, while all but ten percent (N = 87) of the friends of students were perceived as not being concerned about the students' grades.

2. Parents were indicated as academic significant others

by 88 percent of the males (N = 374) and 91 percent of the females (N = 472); 24 percent of the females indicated that their friends were both important in their lives and concerned with how well they did in school.

3. Parents were perceived by students as holding higher academic achievement expectations than friends. (See Table 9.1).

TABLE 9.1
MEAN PERCEIVED ACADEMIC EXPECTATION LEVELS
OF PARENTS AND FRIENDS (t tests)

	Mean Perception of Parental Academic Expectations Level		Mean Perception of Friends Academic Expectations Level		
	$\overline{X}$	SD	$\overline{X}$	SD	t
Males N = 425	7.44	1.19	6.39	2.38	8.11*
Females N = 517	7.66	1.15	6.65	2.41	8.58*

*P beyond .01 level

4. Parents were perceived by students to attach more importance to their achievement expectations than were friends regardless of the level of perceived achievement expected of the student, or of the achievement level of the student. (See Table 9.2, page 195)

5. Parents were perceived by students as holding them (the students) under higher surveillance than were friends. (See Table 9.3, page 195)

TABLE 9.2
COMPARISON OF STUDENT PERCEPTIONS OF THE IMPORTANCE ATTACHED TO ACADEMIC EXPECTATIONS BY FRIENDS AND PARENTS OF LOW-ACHIEVING, AVERAGE-ACHIEVING AND HIGH-ACHIEVING STUDENTS TENTH GRADE (t tests AND ANALYSIS OF VARIANCE)

	Perceived Importance Attached to Expectations				
Students	Parents* $\bar{X}$	SD	Friends* $\bar{X}$	SD	t
High Achieving (3.50-4.00 GPA)					
Female N = 56	3.32		2.55		
Male N = 11	3.63		2.18		
Combined N= 67	3.37	0.48	2.49	0.68	8.52**
Average Achiev. (2.25 GPA)					
Female N = 61	3.70		2.42		
Male N = 54	3.68		2.44		
Combined N=115	3.69	0.48	2.43	0.82	14.05**
Low Achieving (0.00-0.75 GPA)					
Female N = 18	3.27		2.38		
Male N = 41	3.63		2.46		
Combined N= 59	3.52	0.70	2.44	0.81	7.67**

*Analysis of variance indicated no difference among friends or among parents by level of achievement (.05 level).

**P beyond .01 level

TABLE 9.3
COMPARISON OF PERCEPTION OF SURVEILLANCE BY PARENTS AND FRIENDS (t test)

	Friends $\bar{X}$	SD	Parents $\bar{X}$	SD	t
Males N = 425	3.45	0.97	3.85	0.80	6.34*
Females N = 517	3.68	0.86	3.90	0.79	2.23*

*P beyond .05

Achievement Norms and Achievement

The findings in this study support the hypotheses that achievement expectations from parents and friends (when friends hold such expectations) are related to student achievement level (Table 9.4). The hypothesis that parental achievement expectations are more related to achievement than those of friends was accepted for male but not for female students. While the finding concerning perceived friends' expectations among females was not anticipated, it is of theoretical relevance that parental influence was at least as great as that of friends. The mutual support from friends may account for the tendency of females to achieve at a higher level than males.

TABLE 9.4
CORRELATIONS OF STUDENTS' PERCEPTION
OF THE ACADEMIC ACHIEVEMENT EXPECTATIONS
HELD BY PARENTS AND FRIENDS
AND ACADEMIC ACHIEVEMENT

Males N = 425 Females N = 517		Academic Achievement Expectations of Friends r's*	Academic Achievement Expectations of Parents r's*
Grade-Point Average	Girls	.44	.43
	Boys	.35	.46

*All r's significant, P beyond .01 level

Another major finding was that in all cases but one parents were named as academic significant others for high-achieving students, while of this same group of students friends were named only 33 percent of the time. In addition, the significant others of the high-achieving students expected high performance. In no case did any high achieving student perceive low expectations on the part of parents or friends.

As anticipated, neither the level of perceived importance nor the level of perceived surveillance of academic behavior were directly associated with achievement. It was hypothesized and accepted, however, that perceived importance and surveillance are conditions which affect the influence of perceived expectations (See Tables 9.5 and 9.6 on the following pages). Perceived conditions of academic role obligations (high surveillance and high importance) appears to have an important effect upon the association of achievement expectations with achievement for tenth grade students (Table 9.5), and in particular for high-achieving students (Table 9.6).

There were almost no subjects who indicated a conflict between parental and friendship expectations under conditions demanding compliancy with both sets of expectations. (8 out of 942, Table 9.5).

Only 25% of the students indicated academic role obligations on the part of parents or friends for achieving at any level (232 out of 942, Table 9.5). For most students (75%), neither parents nor friends were perceived as holding achievement expectations under "conditions of obligation."

Similarly perceived expectations (high or low) on the part of parents and friends were associated with large and significant differences in achievement of GBA (2.58 as compared

TABLE 9.5
RANK ACHIEVEMENT LEVEL OF CATEGORIES OF STUDENTS WHO PERCEIVED HIGH OR LOW ACHIEVEMENT EXPECTATIONS UNDER CONDITIONS OF OBLIGATION OR PERCEIVE NO OBLIGATORY CONDITIONS FOR ACHIEVEMENT FROM PARENTS OR FRIENDS

Perceived Parents as Holding	Perceived Friends as Holding	No.	GPA
1. High expectations under conditions of obligation	High expectations under conditions of obligation	41	2.58
2. High expectations under conditions of obligation	No obligatory conditions for achievement	146	2.48
3. High expectations under conditions of obligation	Low expectations under conditions of obligation	4[a]	*
4. No obligatory conditions for achievement	High expectations under conditions of obligation	3	*
5. Low expectations under conditions of obligation	High expectations under conditions of obligation	4	*
6. Low expectations under conditions of obligation	Low expectations under conditions of obligation	34	1.48
Total who perceive a condition of obligation		232[b]	
Other categories:			
High expectations no importance or surveillance	High expectations, no importance or surveillance	15	2.10
Low expectations, no importance or surveillance	Low expectations, no importance or surveillance	6	*

*Insufficient number to compute mean.

[a] Interestingly, three of these four subjects had GPA's of 3.5 or better.

[b] These 232 out of 942 students reported academic role obligations.

TABLE 9.6
NUMBER OF PARENTS AND FRIENDS PERCEIVED
AS HOLDING HIGH OR LOW ACHIEVEMENT EXPECTATIONS
UNDER CONDITIONS OF OBLIGATION
OR AS NOT HOLDING OBLIGATIONS FOR ACHIEVEMENT
AMONG HIGH AND LOW ACHIEVING STUDENTS
WITH NORMAL OR HIGHER MEASURED INTELLIGENCE*

	High Achievers (GPA 3.5-4.0) N-67	Low Achievers (GPA 0.0-0.75) N-35
Number of Parents Perceived as Holding:		
High Expectations Conditions of Obligation	61	3
Low Expectations Conditions of Obligation	0	14
No Obligations for Achievement	6	18
Number of Friends Perceived as Holding:		
High Expectations Conditions of Obligation	26	2
Low Expectations Conditions of Obligation	3	6
No Obligations for Achievement	38	27

*All subjects had IQ 91 of higher, CTMM, within one standard deviation of mean. IQ = 103.59, N = 942. All low achievers are two or more standard deviations below the mean GPA - 2.26, SD - .76.

with GPA of 1.48, Table 9.5).

When parents and friends reinforced high expectations, the resulting demand conditions from parents and friends were not, as hypothesized, significantly greater than when parents and friends differed; namely, when parents were perceived as holding high expectations under obligatory conditions and friends were perceived as not holding expectations under such conditions of obligation (Table 9.5).

There were no students achieving at a high level who indicated parents as holding low expectations and only three of the high-level achievers had friends who were perceived as holding low expectations under obligatory conditions (Table 9.6). Friends were perceived as sharing the same expectation level as parents, or at least as not conflicting with parents, among 96 percent of the high-achieving students. As previously suggested, it appears that high achievement norms are likely to be a necessary but not a sufficient condition for high achievement.

Achievement at the high levels is characterized by high parental expectations under obligatory conditions (61 out of 67). Perceived expectations of friends under obligatory conditions is not nearly as prevelant among high achievers (29 out of 67).

On the other hand, forty percent of the low achieving students. indicated parents as holding low expectations under obligatory conditions (14 out of 35), while 51 percent indicated that there were no obligatory conditions associated with parental expectations. Only three out of 35 parents were perceived as being pleased with high achievement, plus attaching a great importance to high achievement, at the same time that the parents were aware of the students' poorer performance. The same pattern of low expectations under obligatory conditions, or of no obligations for achievement characterizes low achieving student perceptions of friends (See Table 9.6).

In summary, when parents and friends are perceived to reinforce each other in their achievement expectations under the obligatory conditions of perceived surveillance and importance, there is a greater association of expectations.

Conflicts in parental and friendship achievement expectations under perceived conditions of role obligation were rare (unanticipated finding). Only eight out of 942 students indicated this level of conflict. Thus, it was impossible to test hypotheses pertaining to the dominance of parental relationships over friendship relationships when there is conflict. Perhaps conflict between parents and friends in terms of academic achievement expectations is not as relevant for most students as is commonly thought. When conflict occurs, however, it is as yet unknown whether the parent or friends relationship will be the most influential.

Conclusions and Implications

Although further testing for confirmation is required, the finding that there is a relationship between achievement and perceived academic expectations under conditions of obligation suggests, that parents and/or friends can influence a large proportion of students toward higher achievement. Without importance and surveillance attached to high academic expectations, the expectations are not as likely to result in higher levels of achievement. In other words, if parents of academically capable low achievers would seek higher academic expectations under obligatory conditions, their children's achievement is likely to show improvement. This inference, however, needs further verification through experimental programs. These experimental programs should be conducted with parents: (1) holding higher academic expectations for their children; and (2) attaching both greater importance to and closer surveillance over their children's academic performance.

A second conclusion is that the research findings of this study are not in accord with the view that the influence on achievement of the peer group is more important than that of the parents in the area of academic achievement. We found that academic expectations under the obligatory conditions are crucial factors in the academic achievement of the student. This investigation has supported the view that a tenth grade student's perceived role-relationship with his parents is more likely to involve norms which specify his academic achievement level than are his perceived role-relationships with friends. Furthermore, the male student's achievement in school corresponds more to the norms of parental relationships. In the case of female students, achievement tends to correspond equally to the perceived norms of both parents and friends, since parents and friends tend to hold similar expectations. Hence, it was impossible to determine whether parents or friends guided females more. It is significant, however, that no finding suggested females as being guided more by friends than parents. Thus, while all the findings were not anticipated, none of them give any support to a view that parents have less ability then peers to influence children's academic performance.

This study seriously challenges the Coleman position that ". . . what our society had done is to set apart in an institution of their own, adolescents for whom home is little more than a dormitory and whose world is made up of activities peculiar to their fellows. . ."[1] The academic expectations of the family play a major role in the performance of the student. These findings are in accord with the findings presented in Chapter III, that parents in contrast to friends, are more likely to be the academic significant others for 10th grade students.

However, the findings of this study do not suggest that the expectations of friends are not or never can become academically influential. But for most students friends are not perceived to be particularly concerned. And so if friends are academically influential, it is not likely to have been due to the academic expectations they hold. Any other type of influence upon academic achievement, however, is a subject for further research.

A final suggestion is that academic achievement is a reflection of the normative and evaluative influences which occur outside of the classroom (primarily in the family). Hence, if it is important to change the academic behavior of students, it is also important to effect changes in the relationships these students have with their parents.

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[1] Coleman (1960), op. cit., p. 339.

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CHAPTER X

SELF-CONCEPT OF ABILITY AND SCHOOL ACHIEVEMENT: A COMPARATIVE STUDY OF NEGRO AND CAUCASIAN STUDENTS*

Richard Morse
University of Delaware

The purpose of this study was to investigate the relationship between classroom learning and self-concept of ability among Negro and Caucasian students in a Midwestern urban complex. A particular concern of the study was the differential interaction between self-concept of ability and classroom achievement among Negro and Caucasian students. It was anticipated that ethnic differences would have a pronounced effect upon the relationship between the two variables.

The total sample for the study consisted of practically all eighth-grade students in one middle-sized, urban-industrialized population center of the Midwest. The Negro and Caucasian sample consisted of 114 and 1482 students, respectively. The two samples included students from each of four junior high schools in the community thus described.

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*From Richard J. Morse. Self-Concept of Ability, Significant Others and School Achievement of Eighth-Grade Students: A Comparative Investigation of Negro and Caucasian Students, M.A. thesis, Michigan State University, East Lansing, Michigan, 1963.

The major thesis or proposition advanced in this investigation, which was tested in the form of three specific hypotheses, was drawn from the symbolic interactionist theory of human behavior. It stated that self-concept of ability is a functionally limiting factor in school achievement. The three specific hypotheses were formally stated as follows:

1. The self-concepts of ability of Negro and Caucasian students are related to their achievement when intelligence is controlled.
2. The self-concepts of ability in specific school subjects of Negro and Caucasian students vary from one subject to the other and from their general self-concepts of ability.
3. The expectations of significant others as perceived by Negro and Caucasian students are positively correlated with the students' self-concepts as learners and with their classroom achievement.

The data obtained indicated the following: (1) The hypothesis that self-concept of ability is related to achievement when intelligence is controlled was strongly supported. (2) The hypothesis that self-concepts of ability in specific school subjects vary from one subject to the other and from the general self-concept of ability was also substantiated among both the Negro and Caucasian students. (3) The hypothesis that a student's self-concept of ability is positively and significantly related to the expectations of significant others was tenable for both the Negro and Caucasian students when parents, teachers, and peers were identified as the significant others. (4) The hypothesis that a student's classroom achievement is positively and significantly related to the expectations he perceives significant others to hold of him was tenable for both the Negro and Caucasian students when parents, teachers, and peers were identified as the significant other persons.

The findings of the comparative aspect of this investigation showed that the correlations for the Negro sample were sometimes significantly lower than the same correlations for the Caucasian sample.

1. The relationships between students' general self-concepts of ability and the evaluations they perceived their parents to hold of their abilities was not significantly different among Negro and Caucasian students. The obtained correlation coefficients were .70 for the Negroes and .73 for the Caucasians.
2. The relationship between the students' general self-concepts of ability and the evaluation they perceived their peers to hold of their abilities was significantly greater among the Caucasian students than among the Negro students. The relevant coefficients of correlation were .40 for the Negroes and .65 for the Caucasians.

3. The relationship between grade point average and measured intelligence was significantly lower among Negro students than among Caucasian students. The obtained coefficients of correlation were .16 for the Negroes and .40 for Caucasians.
4. The relationship between self-concept of ability and grade point average was significantly lower among Negro students than among Caucasian students. The obtained coefficients of correlation were .43 for Negroes and .65 for Caucasians.

In addition to the above, the following comparative findings were thought to be of particular significance:

1. The mean scores obtained by the Caucasian students on perceived evaluations, self-concept of ability, grades and measured intelligence were all significantly greater than the mean scores obtained by the Negro students.
2. Self-concept of ability was a better predictor of classroom achievement than IQ for both the Negro and Caucasian students. The obtained beta weights (in the multiple correlation among GPA, IQ, and S-C) were .416 for self-concept and .032 for IQ among the Negroes, and .442 for self-concept and .362 for IQ among the Caucasians.
3. IQ was weighted significantly higher as a predictor of achievement among the Caucasian students than it

was among the Negro students. The comparative beta weights (as noted above) were .032 for Negroes and .362 for Caucasians.

Perhaps the most noteworthy finding from this comparative analysis is the relative importance of self-concept of ability and measured intelligence in predicting school achievement among Negro students. Not only is the correlation between I.Q. and achievement low, but as noted above I.Q. accounts for only a small percentage of the variance in achievement among Negroes. Self-concept of ability, however, accounts for about the same proportion of the variance in achievement among both Negroes and Caucasians. The Negro student's conception of his ability to succeed in school and his motivation to do so apparently provide a better basis for forecasting his school achievement than measures of intelligence.

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CHAPTER XI

SOCIO-ECONOMIC STATUS AND FUNCTIONING IN SCHOOL: A SYMBOLIC INTERACTIONIST INTERPRETATION*

Richard J. Morse
University of Delaware

Sociological investigations of the impact of the external environment on schools have focused almost entirely on one major problem area, the impact of social class on education. More studies have probably been devoted to this problem than to any other in the sociology of education.[1] While the different investigators do not always agree on the precise meaning of "social class" and how it is best measured, the general conclusion that emerges from most of this literature is that nearly every phase of functioning in school may be accounted for by the phenomena or of social class.

The problem investigated in this thesis centers around two basic questions raised in response to the emphasis on social class, and which are not answered in the existing literature dealing with the impact of social stratification on functioning in school:

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[1] N. Gross, "The Sociology of Education" (in Sociology Today: Problems and Prospects, eds. (R. K. Merton, L. Broom, and L. S. Cottrell, Jr., New York: Basic Books, Inc., Publishers, 1960), pp. 128-152.

*From Richard J. Morse, Socio-economic Status and Functioning in School: A Symbolic Interactionist Interpretation. Ph.D. Dissertation, Michigan State University, 1966.

1. What social-psychological influences account for the variable functioning in school of pupils with different socio-economic status?
2. What social-psychological influences account for the variable functioning in school of pupils with similar socio-economic status?

A theoretical orientation, based upon the symbolic interactionist approach to human behavior, was developed, and two general hypotheses, discussed below, were developed and tested. Within the operational framework, levels of educational aspiration and classroom achievement constitute the school functioning variables and the following social-psychological influences were employed as test factors to account for variable functioning in school: (1) perceived reference group expectations, i.e., the levels of educational aspiration pupils perceived significant others (parents, teachers, and peers) hold for them; and (2) pupils' self-concepts of their academic abilities.

The operational questions from which the specific hypotheses guiding this investigation were formulated are:

1. What is the nature of the relationship between socio-economic status and levels of education aspiration when perceived reference group expectations are

controlled?

2. What is the nature of the relationship between socio-economic status and classroom achievement when pupils' self-concepts of academic ability are controlled?
3. How do pupils with similar socio-economic status but with different levels of educational aspiration differ in perceived reference group expectations?
4. How do pupils with similar socio-economic status but with different levels of classroom achievement differ in self-concepts of academic ability?

The first general hypothesis of this investigation was that perceived reference group expectations and self-concepts are related to observable differences in functioning in school among pupils with different socio-economic status.

The second general hypothesis derived from the theoretical orientation of this investigation was that perceived reference group expectations and self-concepts are related to observable differences in functioning in school among pupils with similar socio-economic status.

Method

The sample investigated in this study consisted of practically all ninth-grade Caucasian boys in the public schools of a typical midwestern city of approximately 120,000 population, during the 1963-1964 school year (N = 874). Negro pupils were eliminated from the analysis because of the high concentration of

Negroes in the lower socio-economic category and because of Negro differences on several other variables investigated. Several Caucasian pupils were eliminated because of incomplete or inadequate data.

Classroom Achievement

Classroom achievement was measured by the average of a subject's school grades (GPA) for the ninth grade. Grades in the four basic subjects of English, mathematics, science and social studies were used in calculating that average.

Level of Educational Aspiration

Two items were designed to measure levels of educational aspiration, one to measure "preference" levels, and the other to measure "expectation" levels. Responses to the latter question provided the measure of level of educational aspiration for this investigation.

Perceived Reference Group Expectations

A series of items were designed to elicit the subjects' perceptions of the expectations and evaluations of themselves held by certain significant other persons in their lives, i. e., parents, favorite teachers, and best friends. Pretests revealed that the persons used as significant others were most frequently mentioned by students as being important in their lives.[2] Three of the items were specifically designed to measure the subjects' perceptions of how far in school their parents, favorite teachers, and best friends expected them to go. Those three items provided the measures of perceived reference group expectations used in this investigation.

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[2] W. B. Brookover, et. al., Self-Concept of Ability and School Achievement, Final Report of Cooperative Research Project No. 845 (East Lansing, Michigan: Office of Research and Publications, Michigan State University, 1962), pp. 55-57.

Self-Concept of Ability

This concept was as the responses of subjects to an eight-item, fixed-alternative scale designed to measure self-concepts of ability in academic endeavors, the Michigan State General Self-Concept of Ability Scale.[3]

Socio-Economic Status

Socio-economic status was measured in the following manner. Subjects were asked to respond to the items, "What does your father (or whoever supports your family) do for a living?" and "Describe what your father (or whoever supports your family) does on the job." Occupations indicated by the subjects were assigned socio-economic ratings from the widely-used Duncan Socio-Economic Index for All Occupations.[4] Where occupations were not clearly specified in response to the first item, the descriptions given in response to the second item were used to determine the appropriate occupational titles. Several occupations not included in the Duncan index were assigned ratings on the basis of their similarity to included occupations. A subject's socio-economic status thus became the Duncan rating of his father's occupation (or the occupation of whoever supported his family).

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[3] See Appendix A

[4] O. D. Duncan, "A Socio-Economic Index for All Occupations" (Occupations and Social Status, ed. A. J. Reiss. Glencoe, Illinois: The Free Press, 1961), pp. 109-161.

Findings

General Hypothesis 1.

General Hypothesis 1 stated that students' reference group expectations and self-concepts are related to the observable differences in functioning in school among pupils with different socio-economic status. The first working hypothesis developed to test this general hypothesis was:

> 1. When pupils are classified according to the levels of educational aspiration they perceive their parents to hold for them, the relationship between socio-economic status and levels of educational aspiration will be substantially reduced.

The analytical procedure for testing this hypothesis (and working hypotheses 2 through 4) involved first, separating the total sample into partial samples which were homogeneous, insofar as the levels of educational aspiration pupils perceived their parents to hold for them (and in the theoretical test factors stated in working hypotheses 2 through 4), and second, observing the partial relationships within each of the homogeneous partial samples.

The relevant statistical data and tests for the first working hypothesis are presented in Table 11.1. The crucial test of the hypothesis lies in the relative magnitudes of the relationship between socio-economic status and levels of educational aspiration in the total sample and the relationships between those variables in the two partial samples.

TABLE 11.1
INTERPRETATION OF RELATIONSHIP BETWEEN SOCIO-ECONOMIC STATUS AND LEVELS OF EDUCATIONAL ASPIRATION WITH PERCEIVED EXPECTATIONS OF PARENTS AS TEST FACTOR

	Total Sample		Perceived Expectations of Parents			
			Low		High	
	Low SES	High SES	Low SES	High SES	Low SES	High SES
High Aspiration	34%	65%	7%	14%	69%	85%
Low Aspiration	66%	35%	93%	86%	31%	15%
N	874		382		492	
X^2	79.49		4.20		17.64	
C	.41		.15		.26	
P	$<.001$		$<.05$		$<.001$	

Because both of the partial relationships were substantially smaller than the original relationship, it was concluded that perceived expectations of parents do, in part, account for the relationship between socio-economic status and levels of educational aspiration.

The second working hypothesis stated:

2. When pupils are classified according to the levels of educational aspiration they perceive their favorite teachers to hold for them, the relationship between socio-economic status and levels of educational aspiration will be substantially reduced.

Table 11.2 on the following page shows the relevant statistical data and tests for this hypothesis. Similarly, the crucial test of Hypothesis 2 lies in the relative magnitudes of the relationship between socio-economic status and levels of educational aspiration in the total sample and the relationships between those variables in the two partial samples.

TABLE 11.2
INTERPRETATION OF RELATIONSHIP BETWEEN
SOCIO-ECONOMIC STATUS AND LEVELS OF EDUCATIONAL ASPIRATION
WITH PERCEIVED EXPECTATIONS
OF FAVORITE TEACHERS AS TEST FACTOR

	Total Sample		Perceived Expectations of Parents			
			Low		High	
	Low SES	High SES	Low SES	High SES	Low SES	High SES
High Aspiration	34%	65%	8%	17%	70%	86%
Low Aspiration	66%	35%	92%	83%	30%	14%
N	874		399		475	
X^2	79.49		6.19		16.14	
C	.41		.17		.26	
P	$<.001$		$<.02$		$<.001$	

The table shows that the same over-all pattern existed in this analysis as in the previous one. In the two partial samples obtained through the introduction of perceived expectations of favorite teachers, the relationships between socio-economic status and levels of educational aspiration were less strong. Pupils who perceived their favorite teachers to hold low expectations of them tended to hold low levels of educational aspiraaction for themselves, socio-economic status notwithstanding.

On the other hand, pupils who perceived their teachers to hold high expectations of the, tended to hold high levels of educational aspiration for themselves, irrespective of socio-economic status. Finally, it can be observed that the degrees of relationship between socio-economic status and levels of educational aspiration in the two partial samples, as assessed with corrected contingency coefficients, were .17 for pupils who perceived their favorite teachers to hold low expectations of them, and .26 for pupils who perceived their favorite teachers to hold high expectations of them. In both cases the partial relationships were substantially smaller than the original relationship. It was thus concluded that perceived expectations of favorite teachers have some effect on the relationship between socio-economic status and levels of educational aspiration.

Similarly, it was hypothesized that:

> 3. When pupils are classified according to the levels of educational aspiration they perceive their best friends to hold for them, the relationship between socio-economic status and levels of educational aspiration will be substantially reduced.

The relevant statistical data and tests for this hypothesis are presented in Table 11, page 220. This table, like the previous two tables, shows that when the perceived reference group expectations variable, perceived expectations of best friends, is controlled the relationship between socio-economic status and levels of educational aspiration, did, indeed, decline substantially. The magnitudes of the corrected contingency coefficients were .19

TABLE 11.3
INTERPRETATION OF RELATIONSHIP BETWEEN
SOCIO-ECONOMIC STATUS AND LEVELS OF EDUCATIONAL ASPIRATION
WITH PERCEIVED EXPECTATIONS
OF BEST FRIENDS CONTROLLED

	Total Sample		Perceived Expectations of Best Friends			
			Low		High	
	Low SES	High SES	Low SES	High SES	Low SES	High SES
High Aspiration	34%	65%	14%	25%	77%	91%
Low Aspiration	66%	35%	86%	75%	23%	9%
N	874		485		389	
X^2	79.49		8.46		14.82	
C	.41		.19		.27	
P	$<.001$		$<.01$		$<.001$	

among pupils who perceived their best friends to hold low expectations of them and .27 among pupils who perceived their best friends to hold high expectations of them. The magnitude of the original relationship was .41. It was therefore concluded that perceived expectations of best friends also affect the relationship between socio-economic status and levels of educational aspiration.

The final working hypothesis developed to test General Hypothesis 1 was stated as follows:

> 4. When pupils are classified according to their self-concepts of their abilities, the relationship between socio-economic status and classroom achievement will be substantially reduced.

Relevant statistical data and tests for this hypothesis are presented in Table 11.4. As with the previous hypotheses regarding levels of educational aspiration, the crucial test of this hypothesis lies in the relative magnitudes of the relationship between socio-economic status and classroom achievement (GPA), the criterion variable, in the total sample and the relationships between those variables in the two partial samples.

TABLE 11.4
INTERPRETATION OF RELATIONSHIP BETWEEN
SOCIO-ECONOMIC STATUS AND CLASSROOM ACHIEVEMENT (GPA)
WITH SELF-CONCEPT OF ABILITY AS TEST FACTOR

	Total Sample		Self-Concept of Ability			
			Low		High	
	Low SES	High SES	Low SES	High SES	Low SES	High SES
High GPA	23%	48%	11%	21%	45%	67%
Low GPA	77%	52%	89%	79%	55%	33%
N	814		442		372	
X^2	54.19		7.94		17.34	
C	.35		.06		.30	
P	$<.001$		$<.01$		$<.001$	

The data indicated that while not as strong as the relationship between socio-economic status and levels of educational aspiration, a positive and reasonably strong relationship existed between socio-economic status and GPA in the total sample, C = .35. Among pupils of high socio-economic status, the ratio of high to low GPA was approximately 1 to 1; but among pupils of low socio-economic status that ratio was less than 1 to 3. The latter ratio clearly accounted for the degree and significance of the relationship in the total sample.

In the two partial samples obtained through the introduction of self-concept of ability, the relationship between socio-economic status and levels of educational aspiration were less strong. Indeed, that relationship virtually vanished among pupils with low self-concepts of their abilities, C = .06. Among pupils with high self-concepts of their abilities, however, the relationship between socio-economic status and GPA was still relatively strong, C = .30, as compared to C = .35 in the original sample. But further examination of the data in Table 4 reveals that observation of the contingency coefficients alone, in this case is misleading. Among pupils with high socio-economic status, the ratio of high to low GPA changed from approximately 1 to 1 in the original sample to approximately 3 to 1 in the partial sample of pupils with high self-concepts of their abilities. Further, among pupils with low socio-economic status, the ratio of high to low GPA changed from approximately 1 to 3 in the original sample to approximately 1 to 1 in the partial sample of pupils with high self-concepts of their abilities. These shifts clearly supported the hypothesis. It was, therefore, concluded that self-concepts of abilities do, in part, account for the relationship between socio-economic status and classroom achievement.

General Hypothesis 2

The second general hypothesis stated that perceived reference group expectations and self-concepts are related to the observable differences in functioning in school among pupils with similar socio-economic status. Similarly, four working hypotheses were formulated to test this general hypothesis. The first of these was:

> 5. Pupils with similar socio-economic status, but with different levels of educational aspiration, will differ significantly in the levels of educational aspiration they perceive their parents to hold for them.

The analytical procedure for testing this hypothesis (and working hypotheses 6 and 7) involved the assessment of mean differences in perceived expectations of parents and perceived expectations of favorite teachers and best friends, as specified in working hypotheses 6 and 7 between pupils who fell in categories of High SES--High Levels of Educational Aspiration and High SES--Low Levels of Educational Aspiration.

Relevant statistical data and tests for Working Hypothesis 5 are presented in Table 11.5 on the next page. The results of t tests shown in the table clearly indicate support for Working Hypothesis 5. The mean perceived expectation of parents' score was 6.03 for pupils with high socio-economic status and high levels of educational aspiration, as compared to a mean perceived expectation of parents' score of 3.56 for pupils with high scoio-economic status but low levels of educational aspiration. The t ratio of the difference between these means was 15.54 (df = 232, $p < .001$). The same mean scores were 5.85, for pupils with low socio-economic status and high levels of educational aspiration, and 3.61 for pupils with low socio-economic status and low levels of educational aspiration. The t ratio of the latter difference was 15.64 (df = 281, $p < .001$). It was thus concluded that pupils with similar socio-economic status, but with different levels of educational aspiration, differ significantly in the levels of educational aspiration they perceive their parents to hold for them.

TABLE 11.5
MEANS AND STANDARD DEVIATIONS
OF PERCEIVED EXPECTATIONS OF PARENTS SCORES
OF PUPILS WITH SIMILAR SOCIO-ECONOMIC STATUS
BUT DIFFERENT LEVELS OF EDUCATIONAL ASPIRATION
WITH T RATIOS AND LEVELS OF SIGNIFICANCE

Socio-Economic	Perceived Expectations of Parents				t Ratio	Level of Significance
	High Aspiration*		Low Aspiration*			
	Mean	S.D.	Mean	S.D.		
High *	6.03 (N=191)	.86	3.56 (N=43)	1.26	15.54	df=232,$p < .001$
Low *	5.85 (N=165)	1.03	3.61 (N=118)	1.29	15.64	df=281, $p < .001$

*Those pupils with socio-economic status scores ± one-half standard deviation around the mean and those with levels of educational aspiration scores ± one-half standard deviation around the mean were excluded from this analysis to assure that high and low categories in each case are different.

Similarly, it was hypothesized that:

6. Pupils with similar socio-economic status, but with different levels of educational aspiration, will differ significantly in the levels of educational aspiration they perceive their favorite teachers to hold for them.

Table 11.6 shows the relevant statistical data and tests for this hypothesis. The analysis presented in this table was similar to that for Hypothesis 5, the only difference being that the socio-economic status-levels of educational aspiration groups were compared with the levels of educational aspiration they perceived their favorite teachers to hold for them.

The data reveal that the mean perceived expectation of favorite teacher score was 6.00 for pupils with high socio-economic status and high level of educational aspiration, as compared to a mean perceived expectation of favorite teacher score of 3.44 for pupils with high socio-economic status but low levels of educational aspiration. The t ratio of the difference between these means was 16.13 (df = 232, $p < .001$).

TABLE 11.6
MEANS AND STANDARD DEVIATIONS
OF PERCEIVED EXPECTATIONS
OF FAVORITE TEACHERS SCORES
OF PUPILS WITH SIMILAR SOCIO-ECONOMIC STATUS
BUT DIFFERENT LEVELS OF EDUCATIONAL ASPIRATION
WITH T RATIOS

Socio-Economic Status	Perceived Expectations of Favorite Teachers				t Ratio	Level of Significance
	High Aspiration*		Low Aspiration*			
	Mean	S.D.	Mean	S.D.		
High*	6.00 (N=191)	.86	3.44 (N=43)	1.24	16.13	df=232, $p<.001$
Low*	5.79 (N=165)	1.10	3.57 (N=118)	1.34	14.76	df=281, $p<.001$

*Those pupils with socio-economic status scores ± one-half standard deviation around the mean and those with levels of educational aspiration scores ± one-half standard deviation around the mean were excluded from this analysis to assure that high and low categories in each case are different.

Similarly, the same mean scores were 5.97 for pupils with low socio-economic status and high levels of educational aspiration and 3.57 for pupils with low socio-economic status and low levels of educational aspiration. The t ratio of that difference was 14.76 (df=281, $p < .001$). Consequently, it was concluded that pupils with similar socio-economic status, but with different levels of educational aspiration, differ significantly in the levels of educational aspiration they perceive their favorite teachers to hold for them.

It was further hypothesized that:

7. Pupils with similar socio-economic status, but with different levels of educational aspiration, will differ significantly in the levels of educational aspiration they perceive their best friends to hold for them.

The statistical data and tests for this hypothesis are presented in Table 11.7. In this analysis the socio-economic status--levels of educational aspiration groups were compared with the levels of educational aspiration they perceived their best friends to

TABLE 11.7
MEANS AND STANDARD DEVIATIONS
OF PERCEIVED EXPECTATIONS OF BEST FRIENDS SCORES OF PUPILS
WITH SIMILAR SOCIO-ECONOMIC STATUS
BUT DIFFERENT LEVELS OF EDUCATIONAL ASPIRATION
WITH T RATIOS AND LEVELS OF SIGNIFICANCE

Socio-Economic Status	Perceived Expectations of Best Friends				t Ratio	Level of Significance
	High Aspiration*		Low Aspiration*			
	Mean	S.D.	Mean	S.D.		
High*	5.81 (N=191)	.99	3.26 (N=43)	1.03	15.16	df=232, $p < .001$
Low*	5.53 (N=165)	1.16	3.33 (N=118)	1.16	15.74	df=281, $p < .001$

*Those pupils with socio-economic status scores = one-half standard deviation around the mean and those with levels of educational aspiration scores + one-half standard deviation around the mean were excluded from this analysis to assure that high and low categories in each case are different.

hold for them. The table shows that the mean perceived expectation of best friends score was 5.81 for pupils with high socio-economic status and high levels of educational aspiration, as compared with a mean perceived expectation of best friend score of 3.26 for pupils with high socio-economic status but low levels of educational aspiration. The t ratio of the difference between these means was 15.16 (df=232, $p < .001$). Similarly, the same mean scores were 5.53 for pupils with low socio economic status and high levels of educational aspiration; and 3.33 for pupils with low socio-economic status and low levels of educational aspiration. The t ratio of the latter difference was 15.74 (df=281, $p < .001$). It was therefore concluded that pupils with similar socio-economic status, but different levels of educational aspiration, differ significantly in the levels of educational aspiration they perceive their best friends to hold for them.

The final working hypothesis developed to test General Hypothesis 2 was:

> 8. Pupils with similar socio-economic status, but with different levels of classroom achievement (GPA), will differ significantly in their self-concepts of their abilities.

The analytical procedure for testing this hypothesis involved the assessment of mean differences in self-concepts of abilities between pupils who fell in categories of High SES--High GPA and High SES--Low GPA; and between pupils who fell in categories of Low SES--High GPA and Low SES--Low GPA. Table 8 presents the statistical data and tests for Working Hypothesis 8. Those results clearly supported the hypothesis. The mean self-concept of ability score was 32.05 for pupils with high socio-economic status and high classroom achievement, compared with a mean self-concept of ability score of 26.03 for pupils with high socio-economic status but low classroom achievement. The t ratio of the difference between those means was 8.36 (df=179, $p < .001$). The same mean scores were 30.64 and 24.42, respectively, for pupils with low socio-economic status. The t ratio of that difference was 9.51 (df=245, $p < .001$. The data thus indicated support for the hypothesis that pupils with similar socio-economic status, but with different levels of classroom achievement (GPA), will differ significantly in their self-concepts of their abilities.

TABLE 11.8
MEANS AND STANDARD DEVIATIONS
OF SELF-CONCEPT OF ABILITY SCORES
OF PUPILS WITH SIMILAR SOCIO-ECONOMIC STATUS
BUT DIFFERENT LEVELS OF CLASSROOM ACHIEVEMENT
WITH T RATIOS AND LEVELS OF SIGNIFICANCE

Socio-Economic Status	Self-Concept of Ability				t Ratio	Level of Significance
	High GPA*		Low GPA*			
	Mean	S.D.	Mean	S.D.		
High*	32.05 (N=114)	3.56	26.03 (N=67)	4.35	8.36	df=179, $p < .001$
Low*	30.64 (N=61)	3.99	24.42 (N=186)	4.57	9.51	df=245, $p < .001$

*Those pupils with socio-economic status scores ± one-half standard deviation around the mean and those with GPA ± one-half standard deviation around the mean were excluded from this analysis to assure that high and low categories in each case are different.

The collective results presented in support of working hypotheses 5 through 8 taken as support for General Hypothesis 2 that perceived reference group expectations and self-concepts are related to the observable differences in functioning in school among pupils with similar socio-economic status.

Conclusions

The results of this investigation seem to warrant two major conclusions. First, to the extent that there is variable functioning in school among pupils with different socio-economic status, there are parallel differences in the behavior that is viewed as proper, required, necessary, and/or desirable among those pupils. Further, these definitions of appropriate attitudes and behavior are derived from, and reflected in, the evaluations and expectations pupils with different socio-economic status perceive other persons important in their lives to hold of them, and in the pupils' self-concepts.

Secondly, the fact that variable functioning in school among pupils with different socio-economic status may, in part, be accounted for in terms of the individual pupil's association with significant others does not preclude the probability that the same social-psychological processes may account for variable functioning in school among pupils with similar socio-economic status. In fact, the results of this investigation support the conclusion that the same social-psychological influences account for the observable differences in functioning in school among pupils with similar socio-economic status.

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CHAPTER XII

A COMPARATIVE STUDY OF SELF-CONCEPT OF ABILITY: DELINQUENT AND NON-DELINQUENT BOYS*

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Concern with self-concept as it is related to learning has increased during recent years, and at the same time, there has been a growing awareness of the importance of a student's perceptions of himself and others in the shaping of his self-concept. In this study it is assumed that definitions of self are acquired and developed in an interpersonal setting where the evaluations and expectations of others serve both to define appropriate behavior and provide the "reflected appraisals" which are the foundations of "self."[1] Extending this view into the area of school learning, Brookover has postulated that a person [illegible] to [illegible] person learns to do what he thinks others believe to be appropriate and desirable for him;[2] furthermore, that the learner's functional limit of his ability to learn is determined by his own view or definition of what he can do and what others who are important to him expect him to do.

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[1] Charles H. Cooley, Human Nature and the Social Order, New York: Charles Scribner's Sons, 1902; George H. Mead, Mind, Self and Society, Chicago: University of Chicago Press, 1934; Harry S. Sullivan, Conceptions of Modern Psychiatry, Washington, D.C.: William Alanson White Psychiatric Foundation, 1947.

*From David L. Haarer, A Comparative Study of Self-Concept of Ability Between Institutionalized Delinquent Boys and Non-Delinquent Boys Enrolled in Public Schools. Ph.D. Dissertation, Michigan State University, 1964.

Several conditions have been found associated with delinquency, among them being deviant or debilitating social environments. Included within these debilitating social environments are behavior of others toward the child prior to or during the development of his delinquency which may lead to derrogations or faulty definitions of self. The delinquent often finds himself confronted with contradictory social norms in both his home and neighborhood. Expectations may be ill-defined because of minimal interpersonal interactions in the home, lack of surveillance by parents, and erratic or overstrict discipline.[3]

Behavior which is considered appropriate by persons significant in the life of the delinquent may violate the expectations and norms of the larger community. It is because of this deviant social environment that we are concerned with the questions of whether or not self-concept of academic ability functions in the same fashion for delinquents as non-delinquents, and whether or not this variable is embedded in the same network of relationships as has been observed for non-delinquent youngsters.

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[2] Wilbur B. Brookover, "A Social Psychological Conception of Classroom Learning," School and Society, LXXXVII (1959), 84-87.

[3] The delinquent has been described as having a "low" self-concept. Conditions which might be antecedent are: contradictory social norms in home; identification with delinquent sub-culture, a typical home structure; interpersonal relationships in home wanting; lack of moral conformity; culture conflicts; lack of cohesiveness; inadequate supervision by mother; indifferent or hostile parents; etc. See William Kvaraceus, "Delinquency," in Chester W. Harris, Ed., Encyclopedia of Educational Research, New York: The MacMillan Company, 1960, pp. 366-367.

In order to determine whether or not delinquents differ from non-delinquents in both the social antecedents and consequences of self-concept of academic ability, and in level of self-concept of academic ability, the following questions were investigated:

1) Who are the significant others to whom delinquent and non-delinquent boys relate themselves in evaluating their behavior as learners? Are there differences between delinquents in this respect?
2) Do the evaluations which a delinquent perceives others as holding differ substantially from the evaluations these others claim they hold?

Four research hypotheses were formulated concerning:

1) comparative levels of self-concept of academic ability;
2) its relationship to achievement when intelligence is controlled;
3) differences between delinquents' and non-delinquents' perceptions of the evaluations of others; and
4) the relationship between perceived evaluations of others and self-concept of academic ability for both groups.

Methods

The non-delinquent male sample (N = 100) was randomly selected from the ninth grade cross-sectional population of the Brookover studies. Before the random selection was undertaken, elimination from the cross-sectional pool was made if the ninth grade IQ score was missing for the subject or if the subject had been in the school system for less than two years.[4]

The sample of ninth-grade institutionalized delinquent boys (N = 100) was drawn from two sources. Fifty boys were selected from each of two residential institutions designed for the custody and treatment of delinquent boys. The first sample of fifty boys was selected from ninth-grade students enrolled in an academic program at a state training school located in the same metropolitan area as the non-delinquent sample. All ninth-grade students enrolled in an academic program at this institution and present during a given period at a given date were used as subjects.

The second sample of fifty delinquent boys was selected from all ninth-grade students enrolled in a private institution for delinquent boys located approximately fifty miles from the source of the other delinquent and non-delinquent samples. Since only forty-seven students were enrolled in the ninth grade at the private institution on the date selected, the first three new students to enroll in the ninth grade were also included as subjects, making the sample total N - 50 to match the number selected from the state training school.

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[4] The California Test of Mental Maturity was used for determining IQ scores in the ninth grade.

It was felt that neither of these institutions was alone representative of the institutionalized delinquent population and both had unique selective factors operating. The state training school tended to be a place of last resort for delinquent boys. That is, many of these boys had been in previous placement such as foster homes or private institutions, or they may come from families of lower socio-economic areas where other provisions were less accessible. In contrast, the private institution used in this study tended to select delinquent boys who did not appear to need extensive and intensive psychiatric care and who showed some promise of benefiting from the residential care offered at this institution. The private residential school tended to obtain more maladjusted boys from "better" homes, or from homes of higher socio-economic status. The average length of stay was somewhat longer at the private than at the state institution.

Results

Delinquent-Non-Delinquent Differences in Self-Concept of Academic Ability

Hypothesis 1. The mean self-concept of academic ability score of non-delinquent boys is higher than the mean self-concept of ability score of delinquent boys.

The evidence presented in Table 12.1, page 236, shows that the hypothesis is tenable, that non-delinquent male students in a public school have higher self-concepts of academic ability than institutionalized delinquent boys.

TABLE 12.1
MEAN SELF-CONCEPT OF ABILITY SCORES, STANDARD DEVIATION, AND T-TESTS WITH PROBABILITY OF DIFFERENCE BETWEEN DELINQUENT AND NON-DELINQUENT NINTH-GRADE MALE STUDENTS

Delinquent Groups	Mean	S.D.	Non-Delinquent Group N=100 Mean	S.D.	t	Probability of differences
Private (N=50)	26.32	5.29	28.77	4.91	-2.75	.005
State (N=50)	27.88	4.45	28.77	4.91	-1.11	.14
Total (N=100)	27.10	4.93	28.77	4.91	-2.42	.01

Hypothesis 2. The self-concepts of academic ability of delinquent and non-delinquent male students are related to their achievement (GPA in academic subjects) when intelligence is controlled.

The relevant coefficients of correlation are presented in Table 12.2, with and without the effect of intelligence controlled. The analysis showed that the correlation between self-concept of academic ability and achievement were positive and statistically significant (even with the effect of IQ controlled). Thus, the data from each of the three samples lends support to the hypothesis.

Of further significance, upon examination of Table 12.2, page 237, are the low correlations between GPA and IQ with the effect of S-C controlled, and the low correlations between S-C and IQ when GPA is partialled out. For both delinquent samples and the total delinquent group, these correlations are not significantly different from zero. Even in the case of the non-delinquent sample, these correlation coefficients are low when compared with

TABLE 12.2
COEFFICIENTS OF CORRELATION BETWEEN ACADEMIC GRADE POINT AVERAGE (GPA), MEASURED INTELLIGENCE (IQ), AND SELF-CONCEPT OF ABILITY (S-C) FOR DELINQUENT AND NON-DELINQUENT MALE STUDENTS#

		Correlation Coefficients		
Group	Variables Correlated	No Variable Controlled	Third Variable Controlled	
Delinquent-Private (N=50)	GPA - IQ	.24	S-C	.14
	GPA - S-C	.45*	IQ	.42*
	S-C - IQ	.26	GPA	.17
Delinquent-State (N=50)	GPA - IQ	.01	S-C	-.04
	GPA - S-C	.33*	IQ	.34*
	S-C - IQ	.16	GPA	.17
Delinquent-Total (N=100)	GPA - IQ	.14	S-C	.07
	GPA - S-C	.41*	IQ	.39
	S-C - IQ	.19	GPA	.14
Non-Delinquent (N=100)	GPA - IQ	.58*	S-C	.23*
	GPA - S-C	.75*	IQ	.63*
	S-C - IQ	.57*	GPA	.24*

#The multiple correlation coefficients ($r_{1.23}$) among GPA, IQ, and S-C were .77 for the non-delinquent sample, .42 for the total delinquent sample, .34 for the state training school delinquent sample, and .47 for the private institution delinquent sample.

*$P < .05$ for the test that r or $r_{12.3}=0$.

the correlation coefficient of .63 between GPA and S-C with the effect of IQ partialled out. These findings are congruent with the findings of Brookover[5] and give further evidence that the self-concept of ability scale measures a different variable from the one that the IQ measures and that self-concept is an independent [illegible] predictor of classroom achievement when measured by grade point average. In the case of the delinquent samples, IQ was not a good predictor of GPA. When self-concept was partialled out the relationship between IQ and GPA was not significantly different from zero.

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[5] Wilbur Brookover, Shailer Thomas, and Ann Paterson. Self-Concept of Ability and School Achievement. Final report of Cooperative Research Project No. 845, Office of Research and Publications, College of Education, Michigan State University, 1962, p. 38.

Comparison of the partial correlation coefficients between IQ and GPA (with the effect of S-C controlled) with the multiple correlation of IQ and S-C with GPA, indicates that the correlation increases from .07 to .42 for the total delinquent sample, and from .23 to .77 for the non-delinquent sample. The multiple correlations reported have beta weights of .06 for IQ and .41 for self-concept of ability among the total delinquent sample and .22 for IQ and .62 for self-concept among the non-delinquent sample. Thus self-concept of ability is weighted higher than IQ as a predictor of achievement for both ninth-grade public school male students and ninth-grade institutionalized delinquent boys. These findings are consistent with those reported by Morse[6] in his similar comparison of Negro and Caucasian subjects.

> Hypothesis 3. The evaluations of significant others perceived by delinquent and non-delinquent boys are positively related to these students' self-concepts of academic ability.

This hypothesis provides a test of the proposition that self-definitions are reflexive, mirroring the appraisals of others.

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[6] Richard J. Morse, "Self-Concept of Ability, Significant Others and School Achievement of Eighth Grade Students; A Comparative Investigation of Negro and Caucasian Students," Unpublished M.A. Thesis, Michigan State University, East Lansing, 1963; See this report.

Two analysis methods were employed in the test. First, the perceived evaluations of parents, teachers, and friends were correlated with self-concept of academic ability scores for both delinquents and non-delinquents. These correlations, shown in Table 12.3, were all statistically significant and positive.

TABLE 12.3
COEFFICIENTS OF CORRELATION
BETWEEN GENERAL SELF-CONCEPT OF ABILITY
AND THE EVALUATIONS PERCEIVED
OF SIGNIFICANT OTHERS
FOR BOTH DELINQUENT AND NON-DELINQUENT
MALE NINTH-GRADE STUDENTS

Students' Perception of:	Correlation with General Self-Concept			
	Delinquent			Non-Delinquent
	Private N=50	State N=50	Total N=100	N=100
Perceived Parental Evaluations	.63	.57	.61*	.76*
Perceived Friend's Evaluations	.82	.60	.73	.67
Perceived Teacher's Evaluations	.71	.65	.69	.71
Perceived Houseparent's Evaluations	.50	.40	.47	
Perceived Counselors Evaluations	.74	.63	.68	

All correlations are significantly different from 0 at the .01 level of significance.

*Difference is significant at .05 level of significance (correlation coefficients between students' perception of parents' evaluations and general self-concept of ability--a comparison between delinquent and non-delinquent students).

Second, coefficients of correlation between students' academic grade-point average and the evaluations they perceive others to hold of their academic abilities were calculated. In Table 12.4 it can be seen that in 10 out of 12 instances these correlations were statistically significant and positive.

TABLE 12.4
COEFFICIENTS OF CORRELATION BETWEEN GRADE POINT AVERAGES (GPA) AND THE PERCEIVED EVALUATIONS OF SIGNIFICANT OTHERS FOR THE DELINQUENT AND NON-DELINQUENT NINTH-GRADE MALE STUDENTS

	Correlations with GPA			
Students' Perception of:	Private N=50	State N=50	Total N=100	Non Delinquent N=100
Parents' Evaluations	.20	.33*	.25*	.68*
Teachers' Evaluations	.46*	.41*	.45*	.62*
Peers' Evaluations	.44*	.18	.35	.56*

*P $<$.05 for the test that r=0.

Hypothesis 4. The evaluations of others as perceived by delinquent male students differ from the evaluations of others as perceived by non-delinquent male students.

A two-tailed t-test was used to test the difference in means on perceived evaluations. Table 12.5 on the following page lists the obtained means, standard deviations, "t's" and probability of differences. For each category of others (parents, friends, and teachers) the evaluations perceived by non-delinquent students were higher than those of the delinquents.

One question of interest is whether delinquents differ from non-delinquents as to the persons they believe are the people

TABLE 12.5
DIFFERENCE IN DELINQUENT AND NON-DELINQUENT MALE NINTH-GRADE STUDENTS' MEAN PERCEIVED EVALUATIONS OF ABILITY SCORES HELD BY THREE CATEGORIES OF OTHERS*

Perceived Evaluations of	Delinquent N=100		Non-Delinquent N=100			Probability of Difference
	Mean	S.D.	Mean	S.D.	t	
Parents	18.57	3.77	19.91	3.77	-2.53	.02
Best Friend	17.67	3.62	18.67	3.38	-2.00	.05
Teacher	18.25	4.17	19.56	3.38	-2.24	.05

*Total Possible range of scores for evaluations of others if from 5-25.

"important in their lives" and "concerned with their school work." Two open-ended items were used to obtain the names of these people and who they were. (See Chapter III) By tabulating the percentage of responses in each of the categories shown in Tables 12.6 and 12.7, on the following pages, it was found that as expected, parents were named more often than any one else as both "important in the lives" of both the delinquents and non-delinquents and "concerned about their school work." Non-delinquents mentioned teachers as being "important in their lives" more often than did delinquents. Because of the delinquents' often observed feeling of hostility toward school and school personnel this difference is not surprising.

Another interesting difference between delinquents and non-delinquents ocurred in the mentioning of peers. Although the percentage of delinquents (52%) and non-delinquents (55%) mentioning

TABLE 12.6
PERCENTAGE OF STUDENTS NAMING AT LEAST ONE PERSON FROM EACH OF THE FOLLOWING CATEGORIES AS BEING "IMPORTANT IN THEIR LIVES"

General Significant Others	Percentage			
	Delinquent			Non-Delinquent N=100
	Private N=50	State N=50	Total N=100	
Peers, Same Sex	26	14	20	50
Peers, Opposite Sex	32	54	43	15
Peers, Either Sex	48	62	55	52
Parents or Guardians	84	96	90	92
Teachers	30	8	19	37
Other Academic Personnel	8	2	5	10
Adult Relatives	24	46	35	38
Age-level Relatives	48	90	69	62
Other Local Adults	28	28	28	19
Houseparents	16	12	14	*
Counselor	36	32	34	#
Other Institutional Personnel	42	0	21	*
Nonclassifiable	14	4	9	21

*Not applicable to the non-delinquent sample.
#Included with other academic personnel.

peers of either sex as "important in their lives" were about equal, delinquents mentioned peers of the opposite sex more often than peers of the same sex while the opposite was true for non-delinquents. It also should be noted that none of the delinquent boys from the state training school mentioned other institutional personnel as being "important in their lives" whereas 42 percent of the delinquent boys from the private institution did so. Seemingly reflected in this would be the more intimate involvement between staff and students in the private institution.

TABLE 12.7
PERCENTAGE OF STUDENTS NAMING AT LEAST ONE PERSON
FROM EACH OF THE FOLLOWING CATEGORIES
AS BEING CONCERNED WITH
"HOW WELL THEY DO IN SCHOOL"

Academic Significant Others	Delinquent Private N=50	 State N=50	 Total N=100	Non-Delinquent N=100
Peers, Same Sex	6	2	4	7
Peers, Opposite Sex	12	34	23	7
Peers, Either Sex	16	34	23	12
Parents or Guardians	82	96	89	97
Teachers	40	42	41	51
Other Academic Personnel	26	18	22	23
Adult Relatives	16	38	27	39
Age-Level Relatives	20	50	35	26
Other Local Adults	24	32	28	10
Houseparents	26	2	14	*
Counselor	32	44	38	#
Other Institutional Personnel	36	4	20	*
Nonclassifiable	8	10	9	32

*Not applicable to the non-delinquent sample.
#Included with other academic personnel.

Comparison Between Perceived and Actual Evaluation of the Delinquent Student's Abilities

Besides asking the delinquents to respond to the perceived evaluations of teachers, houseparents, and counselors scales, their "others" were also asked to actually evaluate each student on these items. Presented in Table 12.8 are the actual and perceived evaluations mean scores. Overall, the evaluations perceived by the students are higher than the actual evaluations made by the teachers, houseparents, and counselors. Perhaps this discrepancy is a result of a staff effort to publically convince the delinquent student that he can succeed, while privately the staff does not see the delinquents' chances for academic success as being very good.

TABLE 12.8
MEAN PERCEIVED EVALUATIONS OF ABILITY HELD BY THREE CATEGORIES OF OTHERS AND ACTUAL EVALUATIONS OF STUDENTS' ABILITIES BY THESE PEOPLE: INSTITUTIONALIZED DELINQUENT STUDENTS*

	Private (N=50)			State (N=50)			Total Delinquent (N=100)		
Significant Others	Perceived Mean	Actual Mean	Prob. of Diff.	Perceived Mean	Actual Mean	Prob. of Diff.	Perceived Mean	Actual Mean	Prob. of Diff.
Teacher	18.64	14.84	.001	17.86	16.06	.10	18.25	15.45	.001
House-parent	16.98	14.08	.001	16.32	15.02	.20	16.65	14.55	.001
Counselor	18.06	12.36	.001	18.36	15.08	.001	18.21	13.72	.001

*Total possible range of scores for individual significant others is 5 to 25.

Table 12.9, page 245, gives the correlation coefficients between the students' self-concept of academic ability and the perceived and actual evaluations of others. The statistically significant differences between the correlation coefficients favoring perceived evaluations gives further evidence of the discrepancy between perceived and actual evaluation.

It is believed that this study affords concrete applications for the education of junior high and possibly high school students, and may provide special guidelines for administrators, teachers, and related personnel concerned directly with the education of institutionalized boys. Emphasis could be placed on building a more positive self-concept through the help of

TABLE 12.9
COEFFICIENTS OF CORRELATION BETWEEN STUDENTS' GENERAL SELF-CONCEPT OF ABILITY AND THE PERCEIVED EVALUATION OF TEACHERS, HOUSEPARENTS, AND COUNSELORS; AND THE COEFFICIENTS OF CORRELATION BETWEEN GENERAL SELF-CONCEPT AND ACTUAL EVALUATION BY TEACHERS, HOUSEPARENTS, AND COUNSELORS FOR INSTITUTIONALIZED DELINQUENT

	Correlation with General Self-Concept				Correlation with General Self-Concept		
Perceived Evaluation of:	Private N=50	State N=50	Total N=100	Actual Evaluation of:	Private N=50	State N=50	Total N=50
Teachers	.71	.65	.69[1]	Teachers	.55	.36	.44[1]
Houseparents	.50	.40	.47[1]	Houseparents	.18	-.02	.08[1]
Counselors	.74	.63	.68[1]	Counselors	.24	.08	.12[1]

[1] Probability of difference <.01

the significant others in contrast to relying upon the face value of an IQ score and planning programs in relation to such a score. The evidence presented in this investigation suggests that human capacities are not as limited as so often assumed when IQ scores alone are considered. It has been demonstrated that IQ is not a reliable predictor of classroom achievement among delinquent students enrolled in an academic program. The correlation coefficients for the delinquent students between IQ (ranging between 73 and 125) and grade point averages are .14 without self-concept controlled and .07 with the effect of self-concept partialled out. Neither of these correlations are statistically significant. In contrast to these low correlations, the coefficients of correlation between self-concept of ability and classroom achievement for the delinquent students are .41 without IQ partialled out and .39 with the effect of IQ controlled. These results would suggest a need for much greater discretion in the use and interpretation of standardized intelligence tests.

Since it is postulated that self-concept of ability is formulated in an interpersonal setting and subject to modification, and since it is postulated that the learner tends to evaluate himself as he perceives others evaluate him, it follows that it should be feasible to elevate the self-concept of the delinquent student and consequently raise his level of academic achievement by working through appropriate others.

CHAPTER XIII

A COMPARATIVE STUDY OF MALE HIGH SCHOOL STUDENTS WHO STAY IN SCHOOL AND THOSE WHO DROP OUT*

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Michigan State University

The basic purpose of this study was to determine some of the ways in which Caucasian male high school dropouts differ from those students who remain in school.

The total population selected for this study consisted of 516 Caucasian male high school students who were classified as sophomores during the fall semester of 1963, as juniors during the fall semester of 1964, as seniors during the fall semester of 1965, and who were in attendance at one of the three high schools in a Midwestern urban public school system. Only those students who were enrolled in the regular school program were included in this study; those students enrolled in any type of special education program were excluded. Since this study was part of a larger longitudinal study, only those students who had participated in the regular phases of the longitudinal study were included, but any student who had taken part in a special experimental phase of the longitudinal study was also excluded. The stay-in population consisted of 421 students and included all those persons who met the afore-mentioned criteria. The dropout population consisted of 95 persons who met all the requirements previously specified for the stay-in population, except for the fact that they had voluntarily withdrawn from school during the tenth, eleventh, or twelfth grade. Dropouts were excluded from the study if they had been involuntarily withdrawn had transferred to another school system, or had withdrawn for reasons of illness or poor health.

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*From Kenneth L. Harding, A Comparative Study of Caucasian Male High School Students Who Stay in School and Those Who Drop Out, Ph.D. Dissertation, Michigan State University, 1966.

Variables Examined

The first three variables examined were academic ability, socio-economic status of the family, and grade-point average. These variables were classified as "test variables," since many earlier studies reviewed had found significant differences between dropouts and non-dropouts with regard to these three variables.

Academic ability was determined by obtaining the score for each student in the study population on the California Test of Mental Maturity (CTMM) which had been mass-administered to all ninth grade students. In some instances, ninth grade CTMM scores were not available and eleventh grade CTMM scores had to be used; but ninth and eleventh grade CTMM scores were obtained from the three high schools involved in the longitudinal study. Grade-point averages for the tenth grade -- and, in some instances, for the eleventh grade -- were also obtained from this same source.

Only those grades earned in the basic high school subjects were included. The socio-economic status of the student was measured by the father's occupational level and was assessed by a scale developed by Otis Dudley Duncan.[1]

The four major variables examined in this study were: 1) general self-concept of academic ability; 2) perceived parental evaluations; 3) perceived parental expectations; and 4) educational expectations, or plans. Data for these major variables were obtained through the mass-administration of a questionnaire developed as part of the larger longitudinal study. This questionnaire is now called The Michigan State General Self-Concept of Ability Scale. It was administered to all students in one Midwestern public school system who were seventh graders during the 1960-61 school year, and was re-administered annually to the same group of students for the next five consecutive years; therefore, data were collected on one specific group of students from the seventh grade through the twelfth grade. For the purposes of this study, dropouts and non-dropouts were compared on the basis of tenth grade questionnaire data, except for twenty-one dropouts who transferred to the school system under study at the beginning of the eleventh grade. For this specific group of dropouts, eleventh grade questionnaire data and grade-point averages were used.

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[1] See Albert Reiss, Occupational and Social Status (Glencoe, Illinois: The Free Press, 1961).

Methodology

The three test variables and four major variables examined in this study were first dichotomized into high and low categories by computing mean scores for each variable. All scores falling below the mean for any given variable were classified as low scores; those scores exceeding the mean were classified as high scores. The mean scores of the variables and the subsequent ranges of scores for the high and low categories are presented in Table 13.1.

TABLE 13.1
MEAN SCORES OF VARIABLES AND RANGES
FOR SCORES FOR HIGH AND LOW CATEGORIES

Variable	Mean	Low	High	N
IQ	105.6	105 or Below	106 or Above	516
GPA	1.96	0 - 1.75	2.00 - 4.00	516
SES	39.19	1 - 39	40 - 100	516
SCA	27.76	0 - 27	28 - 40	516
PPEV	18.77	0 - 18	19 - 25	516
PPEX	5.15	1 - 5	6 - 7	506
Ed P1	5.02	1 - 5	6 - 7	506

Chi-square analysis was then used to determine the relative associations between dropouts and non-dropouts with regard to these dichotomized variables. For each analysis a 2 X 2 contingency table design was used and the null hypothesis was rejected at the significance level of .05 or beyond.

The total population of the study was used for comparing dropouts and non-dropouts with regard to the three test variables. Prior to comparing dropouts and non-dropouts with regard to the four major variables of the study, matched groups were randomly selected in order to partial out significant differences between dropouts and non-dropouts that had been determined from the analyses of the three test variables. The major variables of the study were then examined by using 95 dropouts and 95 non-dropouts -- a total matched population of 190 subjects.

Analysis of the Test Variables

Academic ability, socio-economic status of the family, and grade-point average were the three test variables examined in this study. A comparison of dropouts and non-dropouts was made to test the hypotheses, stated in null form, that no significant differences existed between the two sub-populations on these three criteria.

> Hypothesis I. There are no significant differences between male Caucasian high school dropouts and non-dropouts in regard to academic ability as measured by intelligence test.

Examination of Table 13.2 indicates that dropouts and non-dropouts differed significantly with regard to level of academic ability. This difference was significant beyond the .001 level of confidence; therefore, the null hypothesis that no significant differences exist between dropouts and non-dropouts regarding level of academic ability was rejected.

TABLE 13.2
CHI-SQUARE ANALYSIS OF ASSOCIATION
BETWEEN DROPOUTS AND NON-DROPOUTS
AND LEVEL OF ACADEMIC ABILITY

Groups	Level of Academic Ability High	Low	Totals
Non-Dropouts	244	177	421
Dropouts	31	64	95
Totals	275	241	561

$X^2 = 18.90$ 1 d.f. Significant Beyond .001 Level

Hypothesis II: There are no significant differences between male Caucasian high school dropouts and non-dropouts in regard to socio-economic status.

Table 13.3 indicates that dropouts and non-dropouts differed significantly with regard to level of socio-economic status. The difference between the two sub-populations of this study was significant beyond the .001 level; therefore, the null hypothesis that no significant differences exist between dropouts and non-dropouts regarding socio-economic class was rejected.

TABLE 13.3
CHI-SQUARE ANALYSIS OF ASSOCIATION
BETWEEN DROPOUTS AND NON-DROPOUTS
AND LEVEL OF SOCIO-ECONOMIC CLASS

Groups	Level of Socio-Economic Class High	Low	Totals
Non-Dropouts	224	197	421
Dropouts	28	67	95
Totals	252	264	516

$X^2 = 16.54$ 1 d.f. Significant Beyond .001 Level

Hypothesis III: There are no significant differences between male Caucasian high school dropouts and non-dropouts in regard to grade-point average.

Inspection of Table 13.4 indicates that dropouts and non-dropouts differed significantly in regard to level of grade-point average. The chi-square analysis of Hypothesis III indicated significant differences between the two sub-populations of this study beyond the .001 level of confidence; therefore, the null hypothesis that no significant differences exist between dropouts and non-dropouts regarding grade-point averages was rejected.

TABLE 13.4
CHI-SQUARE ANALYSIS OF ASSOCIATION BETWEEN DROPOUTS AND NON-DROPOUTS AND LEVEL OF GRADE-POINT AVERAGE

	Level of Grade-Point Average		
Groups	High	Low	Totals
Non-Dropouts	265	156	421
Dropouts	8	87	95
Totals	273	243	516

$X^2 = 90.13$ 1 d.f. Significant Beyond .001 Level

Analysis of Sampling Data

The total population of the study was used for comparing dropouts and non-dropouts with regard to the three test variables. Prior to comparing dropouts and non-dropouts with regard to the four major variables of the study, matched groups were randomly selected in order to partial out significant differences between dropouts and non-dropouts that had been determined from the analyses of the three test variables.

Ninety-five of the 421 non-dropouts were randomly selected to match the number of dropouts on each of the eight combinations of variables presented in Table 13.5. A table of random numbers was used for this purpose.

TABLE 13.5
DISTRIBUTION OF DROPOUTS AND NON-DROPOUTS
SCORING EITHER HIGH (H) OR LOW (L)
WITH REGARD TO IQ, SES, AND GPA

Variables			Groups		Matched Totals
IQ	SES	GPA	Non-Dropouts	Dropouts	
H	H	H	129	4	8
H	H	L	24	6	12
H	L	H	69	1	2
H	L	L	22	20	40
L	H	H	32	0	0
L	H	L	39	18	36
L	L	H	35	3	6
L	L	L	71	43	86
Totals			421	95	190

Analysis of the Major Variables

The four major variables that have been examined in this study are: 1) general self-concept of academic ability (SCA); 2) the student's perception of his parents' evaluations of his academic ability (PPEV); 3) the student's perception of the level of education his parents expect him to achieve (PPEX); and 4) the student's expressed educational expectations, or plans (Ed Pl). As stated previously, matched groups of dropouts and non-dropouts were used to test the null hypotheses examined in this section.

> Hypothesis IV: There are no significant differences between male Caucasian high school dropouts and non-dropouts with regard to level of self-concept of ability (SCA).

Examination of Table 13.6 indicates that dropouts and non-dropouts differed significantly with regard to level of SCA, even when IQ, SES, and GPA differences had been partialled out. This difference was significant at the .02 level of confidence; therefore, the null hypothesis that no significant differences in SCA exist between dropouts and non-dropouts was rejected.

TABLE 13.6
CHI-SQUARE ANALYSIS OF ASSOCIATION
BETWEEN MATCHED GROUPS OF DROPOUTS AND NON-DROPOUTS
AND LEVEL OF SELF-CONCEPT OF ABILITY (SCA)

	Level of SCA		
Groups	High	Low	Totals
Non-Dropouts	34	61	95
Dropouts	18	77	95
Totals	52	138	190

$X^2 = 5.96$ 1 d.f. Significant at .02 level

> Hypothesis V: There are no significant differences between male Caucasian high school dropouts and non-dropouts with regard to level of perceived parental evaluations (PPEV).

Inspection of Table 13.7 indicates that matched groups of dropouts and non-dropouts did not differ significantly at the

.05 level with regard to level of PPEV. Hypothesis V is, therefore, accepted.

TABLE 13.7
CHI-SQUARE ANALYSIS OF ASSOCIATION
BETWEEN MATCHED GROUPS OF DROPOUTS AND NON-DROPOUTS
AND LEVEL OF PERCEIVED PARENTAL EVALUATIONS (PPEV)

Groups	Level of PPEV High	Low	Totals
Non-Dropouts	42	53	95
Dropouts	29	66	95
Totals	71	119	190

X^2 = 3.24   1 d.f.   Not Significant at .05 Level

Hypothesis VI: There are no significant differences between male Caucasian high school dropouts and non-dropouts in regard to level of perceived parental expectations (PPEX).

Table 13.8 shows that matched groups of dropouts and non-dropouts differed significantly at the .01 level of confidence in regard to level of PPEX.[2]

TABLE 13.8
CHI-SQUARE ANALYSIS OF ASSOCIATION
BETWEEN MATCHED GROUPS OF DROPOUTS AND NON-DROPOUTS
AND LEVEL OF PERCEIVED PARENTAL EXPECTATIONS (PPEX)

Groups	Level of PPEX High	Low	Totals
Non-Dropouts	43	52	95
Dropouts	21	64	85
Totals	64	116	180

X^2 = 7.40   1 d.f.   Significant at .01 Level

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[2] Ten dropouts did not respond to PPEX questionnaire items.

Hypothesis VII: There are no significant differences between male Caucasian high school dropouts and non-dropouts in regard to level of educational expectations or plans (Ed Pl).

Examination of Table 13.9 indicates that matched groups of dropouts and non-dropouts differed significantly with regard to level of Ed Pl.[3] The null hypothesis that no significant differences exist between dropouts and non-dropouts regarding level of Ed Pl was, therefore, rejected.

TABLE 13.9
CHI-SQUARE ANALYSIS OF ASSOCIATION BETWEEN MATCHED GROUPS OF DROPOUTS AND NON-DROPOUTS AND LEVEL OF EDUCATIONAL PLANS (Ed Pl)

Groups	Level of Ed Pl High	Low	Totals
Non-Dropouts	35	60	95
Dropouts	18	67	85
Totals	53	127	180

$X^2 = 4.57$ 1 d.f. Significant at .05 Level

Addendum to the Study

The present study has examined relationships between male Caucasian high school dropouts and non-dropouts with regard to selected characteristics. The assumption was made that the dropouts used in this study were a homogeneous group, regardless of the differences in grade-levels they had attained at the time of dropping out. However, after analyzing the data as presented above, it was felt that a test of this assumption of homogeneity with regard to grade-level attained was a necessary addition to the study. Comparisons were, therefore, made between tenth grade dropouts and those students dropping out during either the eleventh or the twelfth grade to determine whether significant differences existed between these two dropout groups with regard to the three test variables and the four major variables that were examined in this study. Analysis of the data indicated that no significant differences existed between these two dropout groups on any of the seven variables of the study.

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[3] Ten dropouts did not respond to Ed Pl questionnaire items (Cf. ante).

Summary

On the basis of the statistically significant findings, the following conclusions may be summarized. Each conclusion should be viewed as being most applicable to Caucasian male high school students who reside in Midwestern urban communities.

1. The academic ability, as measured by I.Q., of dropouts is significantly lower than that of students who remain in school. It is believed, however, that differences in academic ability scores do not provide sufficient information, when considered in isolation from other factors, to identify adequately the potential dropout. Thirty-one of tha 95 dropouts studied had IQ scores of 106 or above (8 had scores of 120 or above); of the 421 non-dropouts studied, 177 scored below 105.6 -- the mean score for the total study popu-

lation.

2. The socio-economic status of dropouts is significantly lower than it is for those students who remain in school. It is believed, however, that examination of socio-economic factors alone do not provide sufficient information to identify adequately the potential dropout. In the present study, 29 percent of the dropouts were classified as having a high socio-economic status level, and 47 percent of the non-dropouts were classified as having a low socio-economic status level.
3. Dropouts' grade point average in basic subjects are significantly lower than those students who remain in school. Of the three test variables examined (IQ, SES, and GPA), it appears to the writer that GPA may be the best single predictor for identifying which students are most likely to drop out of school. Only 8 of the 95 dropouts in the present study had high grade-point averages, whereas 265 of the 421 non-dropouts had high grade-point averages.
4. It is concluded, from examining the distribution of dropouts and non-dropouts with regard to high and low levels of the three aforementioned test variables, that potential dropouts cannot be adequately identified by SES, IQ, and GPA. Although significant differences beyond the .001 level of confidence were found between

dropouts and non-dropouts on all three test variables, the distribution of non-dropouts did not indicate that a predictable distribution had occurred (see Table 13.5). The largest number of non-dropouts (129) did fall into the highest of the eight possible categories (H-H-H), but the second largest number of non-dropouts (71) was recorded in the lowest of these eight categories (L-L-L). It is believed that a distribution such as this indicates that other variables were also responsible for the differences between dropouts and non-dropouts being measured in this study.

5. Dropouts have significantly lower self-concepts of academic ability (SCA) than non-dropouts when IQ, SES, and GPA differences have been partialled out. Although a student's self-concept may be affected by his academic ability (IQ) and his previous academic performance (GPA), the assessment of the student's self attitudes about his ability to achieve in academic endeavors is an essential factor in predicting whether or not he will drop out of school prior to graduation.
6. Dropouts do not differ from non-dropouts on the basis of perceived parental evaluations (PPEV). Although a significant relationship was determined between dichotomized levels of SCA and PPEV when dropouts

and non-dropouts were considered either jointly or separately, the examination of differences between dropouts and non-dropouts with regard to PPEV did not prove to be significant at the .05 level of confidence. Further examination of the data indicated that 17 of the 95 dropouts scored in the high category on PPEV and in the low category on SCA, whereas only 6 of the 95 dropouts scored in the high category on SCA and in the low category on PPEV. It appears that the dropout may tend to perceive his parents as having a higher evaluation of his academic ability than he has.

7. The perceived parental expectations (PPEX) of dropouts are different from those of non-dropouts when IQ, SES, and GPA have been partialled out. It is believed, however, that potential dropouts cannot be identified by asking students whether or not they think their parents expect them to graduate from high school. The study population mean score for PPEX was 5.15 on a 7-point scale; high school completion was the third lowest item on the scale. Further examination of the data revealed that only four dropouts and one non-dropout perceived that their parents did not expect them to graduate from high school. It is, therefore, concluded that a graduated scale, such as the one employed in the present study, can discrimi-

nate between dropouts and non-dropouts, whereas a single-item response cannot.

8. Dropouts are different from non-dropouts with regard to educational expectations, or plans (Ed Pl), when IQ, SES, and GPA have been partialled out. It is believed, however, that potential dropouts cannot be identified by asking students whether or not they expect to graduate from high school. The study population mean score for Ed Pl was 5.02 on a 7-point scale; high school completion was the third lowest item on the scale. Further examination of the data revealed that only four dropouts and one non-dropout did not expect to graduate from high school. It is, therefore, concluded that a graduated scale, such as the one employed in the present study, can discriminate between dropouts and non-dropouts, whereas a single-item response cannot.

9. There are many variables which help differentiate potential dropouts from those students who will remain in high school until graduation. Although this and previous studies have demonstrated that academic ability, socio-economic status, and grade-point average appear to be essential variables in identifying potential dropouts, evidence from this study indicates that students' self-concept of academic ability and their expressed educational plans are

additional variables which would assist in identifying potential dropouts.

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CHAPTER XIV

ASPIRATIONS FOR COLLEGE AMONG MALE SECONDARY SCHOOL STUDENTS FROM SEVENTH TO TENTH GRADE*

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Introduction

The college and non-college aspirations of secondary school students and changes in these aspirations over a four-year period are the concern of this study. Since more and more occupations require some higher education, and since the nature of our present society demands a larger number of highly trained individuals than ever before, a more detailed understanding of the variables associated with college aspirations during the secondary school years may assist teachers and counselors in their efforts to serve students and society.

While there is some evidence that aspirations for college are formed prior to the actual decisions to attend or not to attend college, little is known concerning these educational aspirations during the secondary school years. There is, however, some evidence to support the theoretical assumption of this study; that is, that educational aspirations arise out of a social interactional process. Herriott's study of the social determinants of educational aspirations supports the view that the educational expectations the student perceives others as holding for him are important in the development of his educational aspirations.[1]

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*From Carl Arthur Sandeen, Aspiration for College Among Male Secondary School Students From Seventh to Tenth Grade. Ph.D. Dissertation, Michigan State University, 1965.

The general problem of this study is to determine what the college and noncollege aspirations of secondary school male students are over a four-year period. Emphasis is placed upon characteristics of students who aspire educationally and occupationally to college and those who do not. Stability of educational aspirations is also described.

Specifically, the purposes of this study are:

(1) To identify some of the factors associated with college and noncollege aspiration among male secondary school students between the seventh and tenth grade.

(2) To determine the consistency of the students' educational aspirations from the seventh to the tenth grade.

(3) To identify some differences which may exist between students at each of the four grade levels who aspire to college and students who do not aspire to college.

The hypotheses for this study, stated in research form, are:

(1) Students who aspire to college have higher self concepts of ability than students who do not aspire to college.

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[1] Robert E. Herriott, "Some Social Determinants of Educational Aspirations," Harvard Educational Review, 33 (Spring, 1963), pp. 157-177.

(2) Students who aspire to college have higher perceived parental evaluations than students who do not aspire to college.

(3) Students who aspire to college have higher grade point averages than students who do not aspire to college.

(4) Students who aspire to college are from a higher socio-economic status than students who do not aspire to college.

(5) Students who aspire to college are more consistent in their aspiration than students who do not aspire to college.

These hypotheses are restated in testable form in Chapter III.

Method

The sample for the study consisted of approximately 280 male students in a midwestern city of about 100,000 people. The following data were collected on these students over the seventh to tenth grade period, 1960-1963: educational and occupational aspiration, self-concept of ability, perceived parental evaluation, social class, and grade point average.

Three groups were selected for this study. Group One consisted of those students who aspired to college and to occupations requiring college degrees. Group Two consisted of those students who indicated a disparity between their educational and occupational aspirations, and Group Three consisted of those who did not aspire to college nor to occupations requiring college education.

The students were selected for the three groups on the basis of their responses to educational and occupational aspiration instruments.

Self-concept of academic ability and perceived parental evaluations measures were obtained from responses to scales discussed in the methodology section of this final report. Appendices A and B contain copies of these scales. SES was evaluated by Duncan scale ratings of father's occupation (a measure of the occupational prestige dimension) while GPA was figured on the basis of a student's grades in subjects generally regarded as academic. Reliability coefficients for all these measures are contained in Chapter II.

Findings

The data presented in Tables 14. 1 through 14.4 show the mean differences between the college aspirers, disparity groups, and non-college aspirers over grades 7, 8, 9, and 10 on four important variables: self-concept of academic ability, perceived parental evaluations, socio-economic status, and grade point average. The null hypothesis of no difference among groups was rejected in each of the fourteen tests. It was alternately concluded that the college aspirer's group mean score exceeded the disparity and non-college group means on: 1) self-concept of academic ability; 2) perceived parental evaluation; 3) SES; and 4) GPA.

To compare consistency of educational aspirations from the seventh through the tenth grades, inter-correlations were calculated for the non-college and the college aspirers, Table 14.5, page 271.

TABLE 14.1
ANALYSIS OF VARIANCE OF MEAN DIFFERENCES FOR COLLEGE ASPIRERS, DISPARITY GROUP, AND NON-COLLEGE ASPIRERS ON SELF-CONCEPT OF ABILITY IN THE SEVENTH, EIGHTH, NINTH, AND TENTH GRADES

Group		N	Mean	F*	t**
7th	College Aspirers	161	29.81		
	Disparity Group	60	27.06	31.15	5.36
	Non-College Asps	27	24.44		6.89
8th	College Aspirers	199	30.32		
	Disparity Group	59	26.76	40.65	6.02
	Non-College Asps.	27	24.00		6.57
9th	College Aspirers	211	30.70		
	Disparity Group	62	26.04	79.38	7.35
	Non-College Asps.	31	22.09		10.24
10th	College Aspirers	219	30.19		
	Disparity Group	52	26.40	73.77	6.47
	Non-College Asps.	27	21.11		12.94

*$F_{.05}$ = 3.01 **$t_{.01}$ = 2.35

TABLE 14.2
ANALYSIS OF VARIANCE OF MEAN DIFFERENCES FOR COLLEGE ASPIRERS, DISPARITY GROUP, AND NON-COLLEGE ASPIRERS ON PERCEIVED PARENTAL EVALUATION IN GRADES EIGHT, NINE, AND TEN

Group		N	Mean	F*	t**
8th	College Aspirers	199	20.64		
	Disparity Group	59	18.27	34.30	4.68
	Non-College Asps.	27	15.74		5.73
9th	College Aspirers	211	20.89		
	Disparity Group	62	17.82	48.07	6.30
	Non-College Asps.	31	16.16		7.55
10th	College Aspirers	219	20.19		
	Disparity Group	52	17.50	37.11	5.21
	Non-College Asps.	27	14.92		7.86

*$F_{.05}$ = 3.01 **$t_{.01}$ = 2.35

TABLE 14.3
ANALYSIS OF VARIANCE OF MEAN DIFFERENCES FOR COLLEGE ASPIRERS, DISPARITY GROUP, AND NON-COLLEGE ASPIRERS ON SOCIAL CLASS IN GRADES EIGHT, NINE, AND TEN

	Group	N	Mean	F*	t**
8th	College Aspirers	199	44.41		
	Disparity Group	59	32.08	16.82	4.06
	Non-College Asps.	27	23.07		6.79
9th	College Aspirers	211	44.48		
	Disparity Group	62	33.40	8.70	3.13
	Non-College Asps.	31	32.22		3.48
10th	College Aspirers	219	42.49		
	Disparity Group	52	35.05	7.54	2.68
	Non-College Asps.	27	26.62		4.85

$*F_{.05} = 3.01$ $**t_{.01} = 2.35$

TABLE 14.4
ANALYSIS OF VARIANCE OF MEAN DIFFERENCES FOR COLLEGE ASPIRERS, DISPARITY GROUP, AND NON-COLLEGE ASPIRERS ON GRADE POINT AVERAGE IN THE SEVENTH, EIGHTH, NINTH AND TENTH GRADES

	Group	N	Mean	F*	t**
7th	College Aspirers	161	2.60		
	Disparity Group	60	2.02	19.75	4.36
	Non-College Asps.	27	1.72		5.93
8th	College Aspirers	199	2.60		
	Disparity Group	59	1.89	26.34	5.48
	Non-College Asps.	27	1.66		6.53
9th	College Aspirers	211	2.37		
	Disparity Group	62	1.65	33.86	6.15
	Non-College Asps.	31	1.44		7.49
10th	College Aspirers	219	2.12		
	Disparity Group	52	1.72	12.72	3.46
	Non-College Asps.	27	1.45		4.31

$*F_{.05} = 3.01$ $**t_{.01} = 2.35$

TABLE 14.5
SUMMARY OF SIGNIFICANCE TESTS FOR DIFFERENCES BETWEEN CORRELATIONS OF EDUCATIONAL ASPIRATIONS AT VARIOUS GRADE LEVELS AMONG COLLEGE ASPIRERS AND NON-COLLEGE ASPIRERS

Grades Correlated	Group	N	Correlation Coefficient	Z Score	$Z_{.05}$
7th-8th	College Aspirers	321	.2938	2.97*	1.96
	Non-College Aspirers	63	-.1160		
7th-9th	College Aspirers	321	.2236	1.97*	1.96
	Non-College Aspirers	63	-.0470		
7th-10th	College Aspirers	321	.1313	2.42*	1.96
	Non-College Aspirers	63	-.2165		
8th-9th	College Aspirers	321	.4200	1.11	1.96
	Non-College Aspirers	63	.5405		
8th-10th	College Aspirers	321	.2999	.39	1.96
	Non-College Aspirers	63	.3402		
9th-10th	College Aspirers	321	.5577	1.26	1.96
	Non-College Aspirers	63	.4226		

*Obtained Z score significant.

By comparing the two sets of correlations in Table 14.5 through the use of a Z transformation it was concluded that the correlation between seventh and tenth grade educational aspiration levels was greater for the college aspirers (.1313) than for the non-aspirers (-.2165). The difference score (z = 2.42) yielded by these two coefficients was statistically significant at the .05 level. Similarly, the differences in correlation between the educational aspiration scores for non-college and college aspirers from grades seven to nine (Z = 1.972) and seven to eight (Z = 2.97) were statistically significant at the .05 level with higher correlations shown by the college aspirers. Analysis of the eight to nine, eight to ten, and nine to ten correlations, however, showed no difference between college and non-college aspirers.

Conclusions

The results of this study generally substantiated the theory from which the research originated. Students' aspirations for college were highly related with self concept of ability, and this held from seventh to tenth grade. A student's perception of his parents' evaluation of his own ability was also significantly related to aspiration for college, the degree of significance decreased each year until the tenth grade. Of the four variables under consideration socio-economic status differences were the least striking. Although it is evident that aspirations did not develop apart from SES, when considering the developmental approach of this study, this trend for SES differences is encouraging, in that a student's conception of his own ability seems to be more highly related to his aspirations than is his social class rating. As expected, aspirations for college were also significantly related to grade point average.

The separation of the students into three groups on the basis of their educational and occupational aspirations proved quite tenable. For each variable under consideration (self concept of ability, perceived parental evaluation, SES, and grade point average) and for each grade level tested from seven to ten, the college aspirers had the highest mean scores and the non-college aspirers had the lowest mean scores. The other group, composed of students who indicated a disparity between their educational and occupational aspirations, had mean scores between the college aspirers and the non-college aspirers in each year of the analysis. Since it was also found that the majority of this disparity group aspired to college but the jobs to which they aspired did not require a college diploma, an understanding of occupational aspirations may contribute to a knowledge of college aspiration in general.

Those students who aspired to college in seventh grade were also fairly likely to aspire to college in each grade after seventh, but this was not the case for the non-college aspirers, as their aspirations did not tend toward consistency until the eighth grade. After eighth grade, there were no significant differences in consistency of educational aspiration between the college aspirers and the non-college aspirers.

It was evident that aspirations for college were not formed just before enrollment in college, as in the seventh grade there was a relatively stable formation of aspirations for many students. If aspirations for college at this early stage are in fact relevant, counselors and teachers might do well to verbalize these aspirations with students.

The results of this study raised some doubts about the findings of some other researchers with regard to the relationship of aspirations to SES. Earlier, it was noted that the relationship of SES to aspirations was not clear. In this study, socio-economic status was found to be significantly related to college aspiration. However, as noted earlier, social class seemed to have decreasing relation to aspiration each year from seventh to tenth grade, so before any conclusive statements could be made, a more intensive study of the relationship of social class to aspirations should be conducted.

The most important findings of this study were the relationship of college aspirations to self concept of ability and perceived parental evaluation, in that there might be some implications for counseling and teaching. If a student's achievement in school and aspirations for future education and employment are not merely functions of his "innate ability" but are closely related to his conception of himself, then the teacher or counselor might have significant influence in his development. It has been demonstrated that a student's self concept can be enhanced by working with his parents, and this has resulted in improved academic performance.[2] The role of a students' parents might also be significant in the formation and enhancement of college aspirations.

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[2] Wilbur Brookover, Jean LePere, Don Hamachek, Shailer Thomas, Edsel Erickson, Self-Concept of Ability and School Achievement II, Report of Cooperative Research Project 1636, East Lansing Bureau of Educational Research Service, Michigan State University, 1965.

CHAPTER XV

SOCIAL PSYCHOLOGICAL CHANGE ASSOCIATED WITH SPECIAL CLASS PLACEMENT FOR EDUCABLE MENTALLY RETARDED STUDENTS*

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Background

The special class movement in American schools has had a brief history characterized, recently, by dynamic growth. For example, between 1958 and 1963 a fourfold increase in enrollment occurred in classes for the mentally retarded.[1] Interestingly enough, and of great concern to those committed to special education, the increase continues even though there is no conclusive evidence that the academic achievement of special class educable mentally retarded (EMR) students is superior to the academic achievement of like students who remain in regular classes.[2,3,4] In an attempt to understand this situation, the project summarized here investigated change in selected social psychological variables which may inhibit the academic achievement of special class EMR students. The findings should not only help to explain the educational outcomes of special placement for EMR students, but also contribute toward improving the results of such placement.

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[1] Romaine Mackie, "Spotlighting Advances in Special Education," Exceptional Children, XXXII (October, 1965), 77-81.

*From Richard C. Towne and Lee M. Joiner, The Effect of Special Class Placement on the Self-Concept of Ability of the Educable Mentally Retarded Child; Report on U. S. Office grant 32-32-0410-6001, College of Education, Michigan State University, East Lansing, Michigan, 1966. Also Towne Ph.D. Dissertation, Michigan State University, 1966.

Objectives

As the initial effort in a program devoted to investigating the proposition that intervening social variables may be functioning to inhibit academic achievement by special class EMR students, this research focuses upon three major objectives:

(1) To investigate what happens to the self-concept-of-ability, academic aspirations, and academic expectations of students labeled EMR and placed in a special class.

(2) To determine who are the significant others and academic significant others of special class EMR students.

(a) To discover whether any change in these variables is associated with special class placement.

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[2] Samuel A. Kirk, "Research in Education," Mental Retardation - A Review of Research, eds. Harvey A. Stevens and Rick Heber (Chicago: The University of Chicago Press, 1964), pp. 57-99.

[3] Howard L. Sparks and Leonard S. Blackman, "What is Special About Special Education Revisited: The Mentally Retarded," Exceptional Children, XXXI (January, 1965), 242-247.

[4] Leonard S. Blackman and Paul Heintz, "The Mentally Retarded," Review of Educational Research, XXXVI (February, 1966), pp 5-36.

(3) To determine if changes in attitude toward the special class are associated with being in the class for one year.

The hypotheses and questions constructed to implement the above objectives are based on and greatly influenced by two related theoretical positions: (1) Wilbur Brookover's social-psychological theory of learning[5]; and (2) Jane Mercer's social system perspective on retardation.[6] In addition, Erving Goffman's "cooling out"[7] discussion as adaptation to failure provided a unique model for the research.

Procedures

The project utilized a time series design wherein six observations were made on the same subjects at approximately equal intervals from a time prior to their knowledge of selection for special class placement through their first year in the class.

The subjects were 42 male and 20 female students from six Michigan school districts who were initially placed in special EMR classes during the 1965-66 school year. They ranged in age from seven to fifteen with a mean CA of 11.63 years and mean SES

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[5] Wilbur B. Brookover, "A Social Psychological Conception of Classroom Learning," School and Society, LXXXVII (1959), 84-87.

[6] Jane R. Mercer, "Social System Perspective and Clinical Perspective, Frames of Reference for Understanding Career Patterns of Persons Labelled as Mentally Retarded," Social Problems, XIII (Summer, 1965), 18-34.

[7] Erving Goffman, "On Cooling the Mark Out," Psychiatry, XV (1952), 451-463.

20.60 as assessed by ranking their fathers' occupations according to Duncan's socio-economic index. The criteria of retardation, selection procedures, and placement decision were left entirely to the various districts.

The data were gathered by using research instruments originally developed by Wilbur Brookover and his associates[8], which include the general self-concept of ability scale, academic aspirations scale, academic expectations scale, significant others test, and academic significant others test. In addition, a class evaluation questionnaire was used. The instruments were individually administered by reading the questions to the subjects and entering their answers on the questionnaire. Examiners were allowed to answer queries or repeat questions. However, they were instructed to utilize standard definitions and examples as much as possible.

Several methods were used to analyze the data. The major hypothesis, hypothesis I, was tested by using an orthogonal polynomial test for trend involving repeated measures on the same subjects. The L statistic was used with hypotheses II, III, and VIII. With hypotheses IV and V as well as well as with questions II and III, the Q statistic was utilized. In addition to Q, Kendall's Coefficient of Concordance (W) was used with questions II and III. By separating answers into eight categories, hypotheses VI and VII were analyzed by the X^2 one sample test with Yate's Correction for Continuity. And graphic comparisons were made to investigate question I.

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[8] Wilbur B. Brookover, et. al., Improving Academic Achievement Through Students' Self-Concept Enhancement, Final Report of Cooperative Research Project N. 1636, U. S. Office of Education (East Lansing: Bureau of Educational Research Services, College of Education, Michigan State University, 1965).

Hypotheses, Results, and Conclusions*

Hypothesis I.

The General-Self-Concept-of-Ability (GSCA) of EMR students placed in special classes will be characterized by a quadratic trend over time.

Prior to performing significance tests, the data were examined to determine their correspondence to the assumptions underlying the analysis of variance model. It was decided that the F test would be relatively unaffected since: (1) the population variances did not differ significantly; (2) the populations deviated only slightly from a normal distribution; and (3) the single factor repeated measures model accounts for correlated observations.

In Figure 15.1 the graphed means reveal that both linear and quadratic components provide a good fit for the data. And since the analysis of variance summarized in Table 15.1 indicates significant differences exist between the means, significant components higher than linear may exist.

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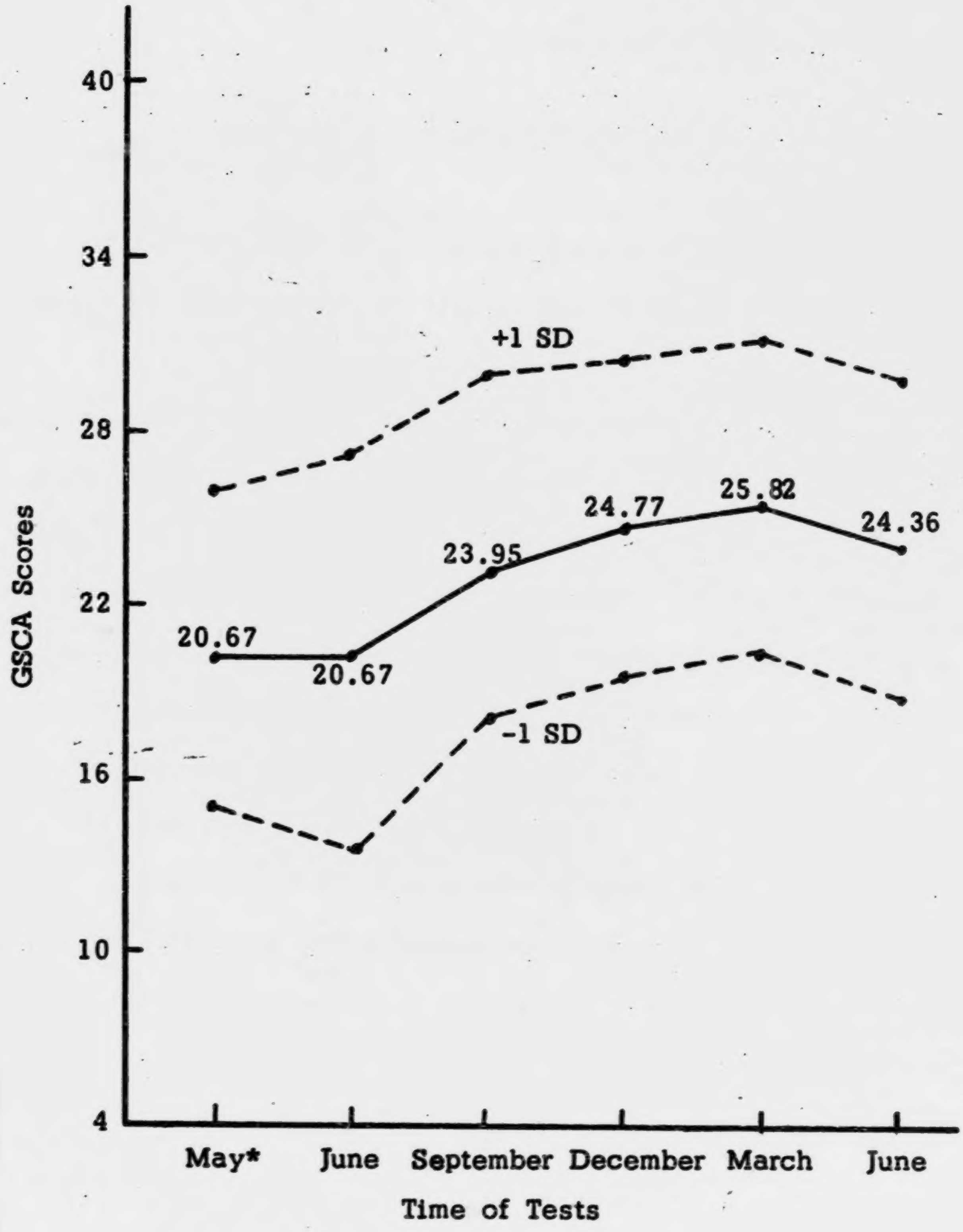
*Conclusions are not meant to be generalized beyond the population under study.



*Not used in the analysis.

FIGURE 15.1.--EMR Mean GSCA Scores.

$$H_r:\ u_2 \neq u_3 \neq u_4 \neq u_5 \neq u_6$$

$$H_o:\ u_2 = u_3 = u_4 = u_5 - u_6$$

TABLE 15.1
ANALYSIS OF VARIANCE SUMMARY TABLE
FOR LONGITUDINAL GROUP'S GSCA SCORES
ON TESTS TWO THROUGH SIX

Source of Variation	SS		df	MS	F
Between persons		2363.06	21		
Within persons		1631.20	88		
Time	330.31		4	82.58	5.33*
Residual	1300.89		84	15.49	

*Significant beyond the .05 level.

The tests for trend are summarized in Table 15.2. The linear component is significant beyond the .01 level. The quadratic component is also significant beyond the .01 level which indicates that within the range of this study the quadratic comparison does add significant predictability to that given by the linear trend. The quadratic hypothesis is accepted.

TABLE 15.2
LINEAR AND QUADRATIC TESTS
FOR TREND ON LONGITUDINAL GROUP'S GSCA SCORES
FOR TESTS TWO THROUGH SIX

Tests	2	3	4	5	6				
Test Totals	455	527	545	568	536	c^2	C	MS	F
Linear	-2	-1	0	1	2	10	203	187.33	12.09*
Quadratic	2	-1	-2	-1	2	14	-203	133.78	8.64*

*Significant beyond the .05 level.

It must be emphasized that while the quadratic hypothesis is supported, its direction is almost the exact opposite of that anticipated. It was reasoned that the GSCA would fall and then rise, but instead, the GSCA rose and then fell. (See Figure 15.1) This reversal renders it meaningless to perform the originally planned individual comparison of means (i.e., $M_2 > M_3$; $M_4 > M_3$; and $M_2 > M_4$). Inspection of Figure 15.1 alone reveals the proposed model does not describe these data.

Refining the hypothesis in terms of the original model by specifying the points at which the GACA would rise also becomes meaningless in view of the overall lack of correspondence between the a priori model and these data. But it may be fruitful to replicate this study to test the quadratic hypothesis and the $2 < 3 < 4 < 5 > 6$ ordering of GSCA means.

Conclusion: -- GSCA scores of EMR students exhibit a quadratic trend over their first year in the special class. These data, however, do not support the a priori self redefinition model wherein GSCA scores fell at placement and then rose from a low point.

Hypothesis II.

The academic aspirations (AA) of EMR students placed in a special class will be characterized by a descending linear trend over time.

TABLE 15.3
RANKING MATRIX OF EMR MEAN ACADEMIC ASPIRATION LEVEL
OVER TIME (1 = HIGHEST TO 5 = LOWEST)

Randomized Groups	Hypothesized Rankings					L
	June 1	Sept. 2	Dec. 3	March 4	June 5	
I	2	1	5	3	4	178*
II	3	4	5	1	2	
III	4	5	2	1	3	
IV	1	3	5	4	2	

*Not significant beyond the .05 level.

Conclusion. -- First year EMR students do not exhibit a significant downward trend in academic aspirations.

Hypothesis III.

The academic expectations (AE) of EMR students placed in special classes will be characterized by a descending linear trend over time.

TABLE 15.4
RANKING MATRIX OF EMR MEAN ACADEMIC EXPECTATION LEVEL
OVER TIME (1 = HIGHEST TO 5 = LOWEST)

Randomized Groups	Hypothesized Rankings					L
	June 1	Sept. 2	Dec. 3	March 4	June 5	
I	1	2	5	4	3	187*
II	1	4	5	3	2	
III	5	1	2	3	4	
IV	1	5	4	3	2	

*Not significant beyond the .05 level.

Conclusion. -- First year EMR students do not exhibit a significant downward linear trend in academic expectations.

Hypothesis IV.

There will be a change over time in the percentage of positive replies by first year EMR students to the question, "How do you like this class?"

While a slight quadratic trend can be noted when examining the data presented in Table 15.5, the change was not sufficient to reject the null hypothesis in favor of the research hypothesis.

TABLE 15.5
NUMBER OF EMR STUDENTS GIVING A POSITIVE REPLY TO THE QUESTION: "HOW DO YOU LIKE THIS CLASS?"

	Tests				
	Sept.	Dec.	March	June	Q
Number of positive answers (possible = 45)	43	41	40	45	7.70*

*Not significant beyond the .05 level.

Conclusion. -- Significant change did not occur over the course of this study in the proportion of first year EMR students choosing the special class when asked, "would you rather be in this class or the one you were in last year?"

Hypothesis VI.

Those named as significant others by EMR students do not differ from those named by a population of regular class school children.

TABLE 15.6
NUMBER OF EMR STUDENTS NAMING THIS CLASS IN REPLY TO THE QUESTION: "WOULD YOU RATHER BE IN THIS CLASS OR THE ONE YOU WERE IN LAST YEAR?"

	Tests				
	Sept.	Dec.	March	June	Q
Number of students naming "this class" (possible = 45)	34	37	38	38	2.87*

*Not significant beyond the .05 level.

To test this hypothesis the number of 13-15 year old EMR students who mentioned at least one person in each category at the final June testing was compared to an expected number derived from the frequency of mention by Brookover's seventh, eighth, and ninth grade regular class students. Thus, eight hypotheses were tested, each taking the above statistical form.

Overall, only one category, "peers same sex," is significant beyond the .05 level. For that hypothesis the null of no difference was rejected in favor of the alternative of difference. Note that the observed was less than expected. In the remaining seven categories, even though the observed is consistently less than the expected, X^2 was not significant beyond the .05 level so that the null could not be rejected.

Conclusion. -- A high degree of correspondence exists between the significant others named by 13-15 year old EMR students and the significant others named by a regular class student population.

TABLE 15.7
SUMMARY TABLE OF X^2 COMPARISONS OF OBSERVED MENTIONS OF SIGNIFICANT OTHERS BY 13-15 YEAR OLD EMR STUDENTS AND EXPECTED MENTIONS BASED ON A REGULAR CLASS POPULATION
(N = 24)

Significant Others	Observed	Expected	X^{2a}	Probability of Occurring by Chance Under H_0
Parents	23	23	.000	.99
Teachers	6	10	2.100	.15
Other School People	2	2	.000	.99
Adult Relatives	11	12	.042	.84
Peers, Same Sex	5	12	7.042*	.01
Peers, Opp. Sex	4	5	.063	.80
Local Adults	1	5	3.085	.08

[a] with df = 1, X^2 - 3.84 has a probability of occurring under H_0 of p .05.
*significant beyond the .05 level.

Hypothesis VII.

Those named as academic significant others by EMR students do not differ from those named by a normal population of school children.

The grouping and statistical procedures used to test this hypothesis are identical to those utilized in the previous hypothesis.

Since for each category the resulting X^2 was not large enough to be significant beyond .05, not one null hypothesis of no change could be rejected in favor of the alternative of change. Note that only in one category, local adults, where the observed exceeded the expected, did X^2 approach the .05 level of significance.

TABLE 15.8
SUMMARY TABLE OF X^2 COMPARISONS
OF OBSERVED MENTION OF ACADEMIC SIGNIFICANT OTHERS
BY 13-15 YEAR OLD EMR STUDENTS
AND EXPECTED MENTIONS
BASED ON A REGULAR CLASS POPULATION
N = 24)

Academic Significant Others	Observed	Expected	X^{2a}	Probability of Occurring by Chance Under H_o
Parents	24	23	.261	.62
Teachers	17	15	.400	.52
Other School People	5	7	.453	.50
Adult Relatives	10	9	.045	.83
Age Level Relatives	7	6	.056	.81
Peers, Same Sex	3	3	.000	.99
Peers, Opp. Sex	1	2	.136	.71
Local Adults	5	2	3.409	.07

[a] with df = 1, X^2 - 3.84 has a probability of occurring under H_o of p .05.

Conclusion. -- A high degree of correspondence exists between the academic significant others named by 13-15 year old EMR students and the academic significant others named by a regular class student population.

Hypothesis VIII.

As they pass through their first year in the special class, an increasing proportion of EMR students will name teachers as academic significant others.

Since the L computed from the ranking matrix presented in Table 15.9 is significant beyond the .05 level, the null hypothesis is rejected in favor of the research hypothesis. The overall hypothesized relationship was strong enough to achieve significance even though the total number of teachers mentioned in December (22) was less than the number mentioned in September (26).

TABLE 15.9
RANKING MATRIX OF EMR STUDENTS
MENTIONING AT LEAST ONE TEACHER
AS AN ACADEMIC SIGNIFICANT OTHER
(1 = LEAST MENTIONS TO 4 = MOST MENTIONS)

Random Replications	Hypothesized Ranking Sept. 1	 Dec. 2	 March 3	 June 4	L
I	3	1	2	4	
II	2	1	3	4	85*
III	1	3	2	4	

*Significant beyond the .05 level.

Conclusion. -- Teachers become academic significant others to an increasing proportion of EMR students during their first year in a special class.

Question I.

Are any differences in reaction to a special class placement reflected by varying changes in the GSCA pattern if EMR students are compared according to each of the following: age at placement, sex, socio-economic status, school system, and initial GSCA score?

Conclusion. -- Little variation was noted between either the high and low SES groups or the male and female groups. The high and low SES GSCA means did not vary by as much as one standard error throughout the study. And both at placement and at the end of the year, the GSCA means of the male and female groups were within one standard error of each other.

Greater variation was found between the younger and older groups. The younger group's GSCA means rose rapidly at placement and remained higher than the GSCA level of the older students whose scores rose gradually to a lower level. Both at placement and at the end of the year, more than two standard errors separated their mean GSCA scores. Even greater variation occurred between the trends of the rural and the urban communities. While the urban GSCA mean was slightly more than one standard error lower than the rural group's mean at the beginning of the study, in September it was nearly two standard errors higher, and by the end of the year slightly more than three standard errors separated the means.

The trends of the high, medium, and low GSCA groups also varied considerably. But in spite of different trends and higher final scores than initial scores, differences between groups were about the same at the end of the year as they were at the beginning of the study.

Question II.

Are there any changes in the identified significant others associated with special class placement?

Conclusion. -- Judging from both the W statistic which showed high agreement among the ranked categories over time and the Q statistic which with one exception failed to demonstrate significant differences among the proportion of students mentioning the various categories over time, it is concluded that little change in identified significant others is associated with special class placement.

Question III.

Are there any changes in the identified academic significant others associated with special class placement?

Conclusion. -- The W and X^2 statistics indicated that little change in overall ranked importance of academic significant others is associated with special class placement. However, further analysis using the Q statistic showed an increasing proportion of EMR students name teachers, parents, and local adults as academically significant others over the course of their first year in a special class.

Discussion

Because of limited space only those findings related to GSCA will be discussed. While the quadratic trend of hypothesis I was upheld, its direction was exactly the reverse of the proposed model. Within the broader theoretical orientation of this study, two overlapping explanations appear likely. First, since the GSCA scale depends upon the individual comparing himself to particular reference groups, change in reference group could result in changed GSCA. Thus, if the special class EMR students' GSCA derives from comparisons with special class students rather than from comparisons with the larger student body, a rise in GSCA upon special class placement could result. This suggests the need for carefully delineating specific social antecedents of GSCA when studying its association with school achievement or when comparing the GSCA levels of various groups. For example, comparing EMR students' GSCA scores to regular class students' GSCA scores would be a questionable practice if it were prematurely assumed that their antecedent referent comparisons were the same.

Secondly, while the proposed model was based on the assumption of immediate realization of failure, it may be that the EMR student will see himself as a failure only after a considerable period of interacting with others who act toward him as though he were retarded. The EMR student's initial comparison of himself to other members of the special class may sustain a positive view of self or even enhance his definition of self as a student. But if by interacting with others who define him as retarded the EMR student's generalized perspective becomes that of the larger community, he would tend to accept a definition of self as retarded and his concept of self as a student would fall. The drop in GSCA between March and June may signal the beginning of the realization of failure as a student, and the noted rise in GSCA may prove to be but a brief cycle in an overall negative trend.

The trend comparisons are difficult to interpret because they are based on single criterion comparisons when, in fact, many influences are operative. But they do point to variables which may bear further investigation. Particularly, the dissimilar GSCA trends of the younger and older EMR students suggest varying conceptions of the special class. It may be that older students are more aware of the assumed derogated position of the special class and thereby find it more difficult to sustain a conception of self as non-retarded. Similarly, the marked differences of retardation, different behavioral expectations, or dissimilar conceptions of the special class according to particular social settings.

Overall, by studying the consequences of special class placement on certain socially mediated social psychological constructs like GSCA, academic aspirations, and academic expectations, this research focuses upon the social consequences of being labeled EMR. For specialists in retardation studies, it reinforces the position of Dexter[9] and Mercer[10] who insist on considering retardation within the social framework in which one is labeled retarded.

It suggests that while we have known for a long time that being labeled EMR in one place is not the same thing as being labeled EMR in another place, we still know little of the specifics. Intensive study of different kinds of schools and communities is needed, and this study should be directed toward the following questions, namely, how does it all begin; what is the machinery of labeling and how does it work; who makes the decisions; what are the criteria; what definitions are operating; what is the function of teachers, parents, friends, and others; how are the retarded expected to behave; and how are others expected to behave toward the retarded. As a result of such study, we might develop better understanding of the nature of an EMR student and the factors contributing to his retardation, and, on the basis of more comprehensive knowledge, determine methods by which changes in his self-concept and achievement can be effected.

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[9] See, for example, Lewis A. Dexter, "Politics and Sociology of Stupidity in Our Society," The Other Side: Perspectives on Deviance, Howard S. Becker (ed.) (Glencoe, Illinois: The Free Press, 1964), pp. 37-49.

[10] Mercer, *op. cit.*

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CHAPTER XVI

THE DEVELOPMENT AND PRELIMINARY ANALYSIS OF A SELF-CONCEPT OF TEACHING ABILITY SCALE

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The major focus of this study is upon the teacher's self-concept of his teaching ability and its presumed correlate: his perceptions of how others evaluate his teaching ability. The primary purpose of the investigation is to determine the feasibility of four, ten-item scales designed to assess: (1) self-concept of teaching ability of secondary school teachers and perceived evaluations of their teaching ability held by (2) their principal, (3) their teaching colleagues and (4) their students.

The major theoretical orientation of this study is based on the symbolic interactionist viewpoint of George Herbert Mead who pioneered the concept that self evolves from interaction with others. Mead concluded that self develops through a societal process rather than a biological one. Because Mead had little to say about the affective influences upon an individual, we shall interpret and extend his theory to indicate that one knows himself only in relation to others and there is no self beyond a complex of acts, responses, emotions and attitudes.

Reference group theory, which developed from the theoretical framework of Mead, emphasizes the individual's taking the values of other individuals as a comparative frame of reference. Although the focus is generally upon the group with which an individual identifies himself, the importance of the reference individual should not be minimized.

A membership group, as defined by Newcomb, is one in which a person is recognized by others as belonging."[1] He added that "a person's membership groups almost inevitably serve as reference groups, occasionally at least." Merton defined a group as "a number of people who interact with one another in accord with established patterns."[2] He also pointed out that the interacting persons would define themselves as members and be defined by others as members. These criteria (1) interaction, (2) self definition as members, and (3) same definition by others, identify members of a group.

Both Newcomb and Merton emphasized that a reference group can be either positive or negative, depending on the individual's attitude toward the group. For example, a family whose norms a child rejects serves as a negative reference group for that child

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[1] Theodore M. Newcomb, Social Psychology (New York: The Dryden Press, 1950), p. 225.

[2] Robert K. Merton, Social Theory and Social Structure (Glencoe, Illinois: The Free Press, 1957), p. 285.

(negative concerning those particular norms) even though the child is a member of the family. In discussing positive and negative reference groups, Merton stated that "the positive type involves motivated assimilation of the norms of the group or the standards of the group as a basis for self-appraisal: the negative type involves motivated rejection, i.e., not merely non-acceptance of norms but the formation of counter-norms."[3]

Mead apparently considered the generalized other as a single concept, a composite of society in general. Reference group theory enlarges upon this view by taking into account the variety of specific groups and persons who have differing impact upon the individual. Therefore, the "generalized other" becomes many others, some of these being more significant to, and, therefore, exerting more influence upon, the individual.

The teacher's relationships with his principal, teaching colleagues and students meet Merton's criteria of group membership: (1) he interacts with them, (2) he defines himself as a member of all three groups and (3) he is defined by others as a member. It follows that each of these three groups exerts power over the teacher to conform to norms and behavior demanded by the group.

Brookover and associates have applied the Meadian approach in their study of self-concept and school achievement. They postulate that: (1) the functional limits of one's ability are in part set by one's self-conception of that ability, and (2) this self-concept of ability is acquired in interaction with significant others.

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[3] Ibid., p. 300.

> In this context, the self is the intervening variable between the normative patterns of the social group or the role expectations held by significant others, on one hand, and the learning of the individual, on the other. We hypothesize that, for the expectations of others to be functional in a particular individual's behavior, they must be internalized and become a part of the person's conception of himself.[4]

Brookover's investigation of the child in a school learning situation indicated that a student's self-concept of ability is positively related to the image he perceives significant others (such as parents, teachers and peers) hold of him. Thus, his findings are consistent with and support the theory that the self-concept an individual holds reflects his interaction with other individuals.

Following Brookover's approach, and extending it to teachers, we would expect that the teacher acquires a perception of his own ability as a teacher from internalizing expectations, including "what is appropriate, desirable and possible" from others.[5] We would hypothesize that since the teacher weighs his behavior and attitudes against the values and norms of these various others, it follows that a teacher's self-concept of his teaching ability evolves from taking the attitudes of and interacting with (both symbolically and physically) significant others. Thus, the evaluations which the teacher perceives these others to hold of him become directly related to his self-concept. For this study, others have been defined as the teacher's school principal, his teaching colleagues, and his students.

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[4] Wilbur B. Brookover and David Gottlieb, Sociology of Education (New York: The American Book Company, 1964), p. 469.

[5] Ibid.

Method

The Self-Concept of Teaching Ability Scale was developed from an original list of twenty items. Five items were removed after three judges evaluated the questions for face validity. The remaining fifteen items were included in a large questionnaire which was administered as a pre-test to all teachers (N=27) of a secondary school. Inter-item correlations and Guttman scalogram analysis from the pre-test data were used to eliminate five more items, leaving a total of ten items for the final SCTA scale (See Appendix F). The ten parallel items were retained for the three perceived evaluation scales (principal, teaching colleagues and students).

The revised questionnaire, in which the four scales were included, was then administered to all teachers of two secondary schools (N=45, N=37). The criteria for selecting these schools for a pilot study of teacher characteristics were (1) the school was considered to be innovative by educational experts and (2) the school was using a particular educational innovation. Each school was located in an urban public school district in the midwest and had approximately 1100 students enrolled in grades nine through twelve.

Findings

Guttman scalogram analysis was applied to the ten item self-concept of teaching ability instrument to determine if it met the accepted criterion of reproducibility.

Because the schools differed in some respects, the two schools were scaled separately. Coefficients of reproducibility of .90 and .92 were obtained for School A and School B, respectively. The pattern of responses would have been the same for both schools if item number 6 had ranked in the first position in School B, Table 16.1.

TABLE 16.1
PATTERN OF RESPONSES FOR SELF-CONCEPT
OF TEACHING ABILITY SCALE

	Item Number									
School A	6	1	9	10	5	8	2	3	7	4
School B	1	9	6	10	5	8	2	3	7	4

All item reproducibilities for both schools met the criterion of .85 suggested by Torgerson.[6]

Correlations were computed between self-concept of teaching ability and perceived evaluations of principal, colleagues, and students in order to test the hypothesized relationships. Results are reported in Table 16.2. All correlations were statistically significant at the .05 level.

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[6] Warren S. Torgerson, Theory and Methods of Scaling (New York: John Wiley and Sons, Inc., 1962), p. 324.

TABLE 16.2
CORRELATIONS WITH SELF-CONCEPT
OF TEACHING ABILITY

	School A N=45	School B N=37
Perc. Prin. Eval.	$r = .81^*$	$r = .85^*$
Perc. Coll. Eval.	$r = .87^*$	$r = .89^*$
Perc. Stds. Eval.	$r = .84^*$	$r = .87^*$

$^*P < .05$

The subjects were asked to rank their significant others in the order in which the others' opinions were important to the subjects. Although parents of students were not considered in this study as significant others for teachers, parents were added as a response to the rank order item. The rank orders are reported in Table 16.3.

TABLE 16.3
RANK ORDER OF IMPORTANCE
OF OTHERS' OPINIONS

	School A	School B
1.	Students	Self
2.	Self	Students
3.	Colleagues	Principal
4.	Principal	Colleagues
5.	Parents of students	Parents of students

Summary

The purpose of this investigation was to develop, evaluate, and analyze an instrument to assess Self-Concept of Teaching Ability. The administration of this scale with two secondary school faculties (N = 45 and N = 37) resulted in a similar ordering of items and Guttman scale coefficients of .90 and .92. All item reproducibilities met the .85 or greater criteria suggested by Torgerson. Furthermore, high positive correlations were hypothesized and confirmed between SCTA and the perceived evaluations of principals, students, and colleagues.

It should be stressed that this study represents a preliminary analysis. Further analyses should include determination of the instruments' stability of measurement and an investigation of the validity (predictive and concurrent) of the construct.

There is no intent to generalize the results of the analyses beyond the sample used in the study because of the selective manner in which the teachers were chosen. Teachers attracted to "innovative" schools may possibly differ from teachers in other types of schools.

CHAPTER XVII

PERCEPTIONS OF THE EDUCATIONAL EXPECTATIONS OF OTHERS AND EDUCATIONAL PLANS: A LONGITUDINAL STUDY OF HIGH SCHOOL MALES*

by

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Corwin A. Krugh
Natalia Sproull

This is a study of differences in educational plan levels among high school males based on the premise that students formulate their educational plans through a social interaction process. The theoretical orientation is that of symbolic interaction[1] and stresses that human actors take others into account through internal communication or dialogue as well as in face-to-face encounters. Plans of action are thought to be formulated under a condition of awareness that others anticipate or expect certain behavior from the individual actor.

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[1] The theoretical position from which the major hypotheses of this study were derived is articulated in the recent works of Wilbur B. Brookover and his associates. It is essentially a reinterpretation and application of the social behaviorism of George Herbert Mead to Educational research. Mead's treatment of "self" and plans of action centered upon awareness and articulation of an internalized social process. See George H. Mead, Mind, Self, and Society, (Chicago: University of Chicago Press, 1934); also The Philosophy of the Present Lectures upon the Paul Carus Foundation (Chicago: London Open Court Publishing Company, 1932).

*A revision of a paper presented at the American Educational Research Association Meetings, February 19, 1966, in Chicago, Illinois. The data reported in this paper are part of research performed pursuant to a contract with the Department of Health, Education and Welfare, United States Office of Education,

That "others" exert some form of influence on educational plans has been shown by researchers such as Coleman.[2] And his analysis provided a basis for challenging the contention that family background, as measured by socio-economic status, exerts as strong an influence on the development of educational plans as does the peer group.

But unlike Coleman, Herriott[3], who also questioned the utility of status characteristics of the family as indices of family influences, proposed that status characteristics (i.e., education and income of parents) gain their limited predictive power only through association with interaction patterns which occur within the family. If this is so, one would want to study aspects of student-parent and student-peer interactions, and the students' perceptions of them, before concluding anything about

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Cooperative Research Project No. 2831. Principal Investigator: Wilbur B. Brookover. The authors gratefully acknowledge the contributions of Richard C. Town and Rosalyn Blum in the development and editing of this paper. We are also indebted to Joanne Landis of the M.S.U. Computer Center for her help with the data analysis.

[2] James S. Coleman and Edward L. McDill, "Family and Peer Influences in College Plans of High School Students," Sociology of Education, XXXVII, (Winter, 1965), 112-126.

[3] Robert Herriot, "Some Social Determinants of Educational Aspiration," Harvard Ed. Review, XXXIII. (Spring, 1963) 157-177.

their relative importance.

The longitudinal population of this study includes all the caucasian, male students in the three public high schools of a midwestern city who met the following criteria (N = 255): (1) had been in the school district from the seventh through twelfth grade; (2) had been regularly promoted; (3) had not participated in special education programs of any type; (4) questionnaire data was available from the seventh through twelfth grades; (5) had complete school achievement records for the six years.

Instrumentation and Stability Data

Each year since the class was in the seventh grade (1961), questionnaires have been administered to all members of this class in attendance. There were approximately 1,000 boys at each grade level.

1. Socio-economic status (SES) was assessed on the basis of the student's report of the occupational title of his father ("or whoever supports your family") and a description of the work involved in the occupation. Duncan Scale value[4], an index of socio-economic status, were assigned.

2. Educational Plan Level (EP)* refers to a student's coded response to the questions:

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[4] Albert Reiss, Jr., et. al., Occupation and Social Status, (Glencoe, Illinois: The Free Press, 1961).

*Seven responses were provided, ranging from graduate work beyond college to quitting school as soon as possible.

> Sometimes what we would like to do isn't the same as what we expect to do. How far in school do you expect you will really go?

3. Perceived Parental Educational Expectation Level (PX)* refers to a student's responses to the question:

> How far do you think your PARENTS expect you to go to school?

4. Perceived Friend's Educational Expectation Level (FX)* refers to a student's response to the question:

> Think about your closest friend at school. Now answer the following questions as you think this FRIEND would answer them.
>
> How far do you think this FRIEND expects you to go to school?

Test-retest stability estimates shown in Table 17.1 have been obtained for the instruments used in this study. These estimates were obtained from secondary, public school, males in another

TABLE 17.1
TEST-RETEST CORRELATIONS
(KENDALL-TAU RANK CORRELATIONS)
FOR MAJOR INSTRUMENTS
ON A SEPARATE POPULATION

Sample	Instrument	Test-Retest Interval	Stability Estimates
Secondary public school Males (Grand Rapids, Michigan) 10th grade, 16 year-olds N=58	EP PX FX	6 months	.68 .63 .48

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*Seven responses were provided, ranging from graduate work beyond college to quitting as soon as possible.

mid-western city over a period of six months and are conservative since some change is expected on these variables within even this period. Shorter test-retest intervals should yield higher coefficients.

The method used for determining the presence of major shifts in the frequency of selection of a particular response level (1-7) on the three variables (EX, PX, FX) was to first rank the response levels according to frequency of selection. Once the response levels were ranked, overall agreement in rankings on each variable over the years was determined. The Kendall Coefficient of Concordance "W" was calculated for each set of rankings (educational plans, perceived parent's expectations, and perceived friend's expectations). Statistical significance ($p < .01$) was obtained in each test. On this basis, it was concluded that essentially the same relative frequencies of selection of each response level (1-7) existed over the grades.

This analysis, along with observation of a high consistency in percentages of students selecting various response levels (1-7) over the years for each variable, provides a basis for assuming that observed changes in individual scores from year to year _are_ _not_ a function of general population shifts and trends.

Validity

Others, such as Berdie and Hood[5], have found statements of educational plans given during the senior year of high school valid on the basis of actual college attendance. The present authors are following the current longitudinal population into the third year beyond high school in order to study the validity of educational plan statements made early in the high school years.

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[5] Ralph F. Berdie and Albert B. Hood, "Trends in Post-High School Plans over an 11-year Period," U. S. Office of Education, _Cooperative Research Project No. 951_. (Minneapolis: University of Minnesota, 1963).

Analysis Procedures

Static analyses for grade levels 8-11 called for a series of zero-order and partial rank correlations calculated over all subjects, in testing hypotheses. But analysis of concomitant change by X^2 on EP, PX, and FX required that only those individuals scoring 3, 4 or 5 on both variables for the year from which the change was to be calculated be included. The exclusion of individuals scoring on either end of the scale was necessitated because of regression effects which appeared in preliminary analyses. Using a Sem criteria, it was decided that shifts of 1 point or more on the scales from one year to the next be considered changes.

For changes on SES, which had been transformed to stanine scores, only subjects who scored 4, 5 or 6 on the year from which the concomitant change was calculated were used.

Findings*

Major Hypothesis A

The educational expectations that students perceive parents and friends as holding are related to the students' educational plan levels.

H_A1: At each grade level (8-11), EP is associated with PX and FX.

H_R1: $\tau > 0$

TABLE 17.2
ZERO AND FIRST-ORDER KENDALL TAU RANK CORRELATIONS
BETWEEN STUDENTS' EDUCATIONAL PLANS
AND STUDENTS' PERCEPTIONS
OF THE EDUCATIONAL EXPECTATIONS OF OTHERS

1. Students' Educational Plan Level N-255 males
2. Perceived Educational Expectations of Parents
3. Perceived Educational Expectations of Friends

	8th	9th	10th	11th
Zero Order				
r_{12}	.64	.73	.81	.76
r_{13}	.57	.62	.70	.76
r_{23}	.52	.64	.71	.71
First Order**				
$r_{12.3}$	.49	.55	.62	.50
$r_{13.2}$	.36	.29	.30	.50

$p < .05$ for all zero-order coefficients in this table.

---

*Data analysis was performed by the M.S.U. Computer Institute for Social Science Research.

**Partial correlations are based on William J. Paisley, Tables of Multiple and Partial Correlation Coefficients for the Three-variable Problem. (Stanford, California: Institute for Communication Research, Stanford University, 1964).

The data reported in Table 17.2 confirm H_R1. Educational plans are associated with the perceived educational expectations of parents and friends at each grade level.

H_A2: Changes in EP are associated with like changes in PX and FX.

H_R2: $C > 0$

TABLE 17.3
CONTINGENCY COEFFICIENTS* FOR CHANGES IN PERCEIVED EDUCATIONAL EXPECTATIONS OF PARENTS AND FRIENDS BY CHANGES IN EDUCATIONAL PLAN LEVEL AMONG 255 MALE STUDENTS

Changes in Perceived Educational Expectations Of:	Changes in Educational Plans Grade:		
	8-9	9-10	10-11
Parents	.59	.60	.56
Friends	.59	.52	.47

*Maximum value of C in a 3 x 3 table is .816

P for all X^2 values $< .05$

Confirmation of H_R2 is apparent by examination of the data in Table 17.3. The analysis of changes by Chi-square yielded coefficients whose p is $<$ the specified α level of .05.

And since the derived hypotheses are confirmed, Major Hypotheses A is accepted for this population: The educational expectations that students' perceive parents and friends as holding are related to the students' educational plan levels.

Major Hypothesis B

The educational expectations that students perceive parents as holding for them (PX) are more related to students educational plans (EP) than are the perceived educational expectations of friends (FX).

> H_B1: At each grade level, the magnitude of associations between EP and PX when variation in FX is controlled will be greater than the association between EP and FX when PX is controlled.
>
> H_r3: $\gamma_{12.3} > \gamma_{13.2}$

Table 17.2 indicates that in the 8th, 9th, and 10th grades control for variation in PX and FX yields first order partials which becomes increasingly disparate. Differences increasingly favor perceived educational expectation of parents (i.e. .49 vs. .36; .55 vs. .29; .62 vs. .30) over these three years. After what appears in grade 10 to be the highest association, perceived expectations of parents by EP drop to a level equalling that of perceived friends' expectations. The two partial correlations are equal in grade 11. Therefore, H_R3 is confirmed only for grades 8, 9 and 10. Disconfirmation results in grade 11.

> H_B2: The magnitude of associations of changes in PX and EP will be greater than the association of changes in FX and EP.
>
> H_R4: $C\ (Px\text{-}EP) > C\ (FX\text{-}EP)$

Chi-square values for association of changes were statistically significant for PX by EP and FX by EP. Contingency coefficients derived from these values show no difference in the strength of association of changes in parents or friends expectations and educational plans between grades eight and nine. But between grades nine and ten, and ten and eleven, there appears to be a slightly stronger association between changes in perceived parental expectations and educational plans, than between changes in perceived friends' expectations and educational plans. Certainly there is no evidence suggesting a stronger influence on the part of peers than parents. Therefore, hypothesis H_B2 is not disconfirmed.

Major Hypothesis C

While statistically significant yearly correlations will be found between socio-economic status (SES) and educational plan levels (EP), changes in SES will not be accompanied by concomitant changes in educational plan levels (EP).

H_C1: At each grade level SES is associated with EP

H_R5: $\tau > 0$

TABLE 17.4
KENDALL-TAU RANK CORRELATIONS
BETWEEN SOCIO-ECONOMIC STATUS,
PERCEIVED PARENTAL EDUCATIONAL EXPECTATION,
AND EDUCATIONAL PLANS

N = 255 males	EP			
	Grade Level			
	8	9	10	11
SES	.29	.24	.30	.23
PX	.64	.73	.81	.76

$P < .05$ for all coefficients

H_R5 is accepted on the basis of the coefficients shown in Table 17.4. At each grade level correlations between SES and EP ranging from .23 to .30 were found. These are statistically significant at the .05 level or better.

H_C2: No statistically significant relationships will be found between changes in SES and changes in EP.

H_R6: C=0

TABLE 17.5
CONTINGENCY COEFFICIENTS FOR CHANGES IN SOCIO-ECONOMIC STATUS, PERCEIVED EDUCATIONAL EXPECTATION, AND EDUCATIONAL PLAN LEVELS

N = 255 males	Changes in EP		
	8-9	9-10	10-11
Changes in:			
SES	.20 n.s.	.19 n.s.	.28 n.s.
PX	.59	.52	.47

$*X^2$ $P < .05$ d.f. = 4

n.s. C values reflect X^2 values, $p > .05$

As indicated in Table 17.5, the X^2 values upon which the contingency coefficients were based were not statistically significant at the .05 level. Therefore, H_R6 is confirmed for all change periods. Changes in SES are not accompanied by concomitant changes in educational plan levels.

H_C3: The observed associations, at each grade level, between EP (1) and SES (2) will be reduced by partialling out the association with PPX (3).

H_R7: $\gamma\ 12 > \gamma\ 12.3$

H_C4: The observed association, at each grade level, between EP (1) and PX (3) will not be reduced, by partialling out the association with SES (2).

H_R8: $\gamma\ 12 \approx \gamma\ 13.2$

TABLE 17.6
ZERO AND FIRST ORDER CORRELATIONS
BETWEEN STUDENT'S EDUCATIONAL PLAN LEVELS (EP),
SOCIO-ECONOMIC STATUS (SES),
AND PERCEIVED PARENTAL EDUCATIONAL EXPECTATIONS

1. Students' Educational Plan Levels N = 255 males
2. Socio-Economic Status
3. Perceived Parental Educational Expectations

	8	9	10	11
Zero Order				
r_{12}	.29	.24	.30	.23
r_{13}	.64	.73	.81	.76
r_{23}	.29	.28	.26	.25
First Order				
$r_{12.3}$	.14	.05	.16	.07
$r_{13.2}$	.61	.71	.79	.74

$P < .05$ for all zero-order correlations in this table.

The results of the partial correlation analysis shown in Table 17.6 confirm H_R7. The association between SES and EP is reduced as follows when controlling for variation in PX: .29 to .14 in 8th; .24 to .05 in 9th; .30 to .16 in 10th; and .23 to .07 in 11th.

Controlling for PX in the SES-EP relationship yields substantial reductions while very little reduction in the relationship between PX and EP is observed when variation in SES is statistically controlled (See Table 17.6). These findings confirm research hypothesis 8.

The overall results support the general hypothesis that while statistically significant yearly correlations may be found between the distributions of a population on SES and EP, concomitant changes in these two variables do not occur. Any conceptualization of the socio-economic status-educational plans relationship as independent-dependent would be erroneous. And even the yearly static associations tend to show spuriousness when perceived parental educational expectations are controlled.

Conclusions and Implications

The major conclusion resulting from this study is that there is a correspondence between the extent of the education that parents and friends are perceived as expecting from students and the stated educational plans of the students themselves. Not only is there a static or single-time association among these variables, but they also show concomitant change. These expectations which the students view others as holding are therefore considered one of the means by which differences in social environments lead to differences in educational actions.

Although measures of parents' socio-economic status are related to the educational plans of their children, the relationship is not strong and there was no evidence that changes in socio-economic status are associated with changes in educational plans. Even the yearly or static associations between SES and plan levels were substantially reduced when the perceived educational expectations of parents were statistically controlled.

It appears, therefore, that general social background measures are only indirectly related to educational plans. In terms of a sociological analysis of education, these findings imply that more attention might profitably be given to the study of differences in interactions and norms within the social structure. And likewise it is clear that general social background measures such as SES are not the most appropriate indices of family influence, at least as far as educational plans are concerned. If SES had been used in this study as an index of family influence it would have been concluded that peer influences, when measured by perceived educational expectations, were greater. However, by analyzing the perceived expectations of both parents and peers in the respect to educational plans, family influence seems somewhat greater than peer influence.

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APPENDICES

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APPENDIX A

SELF-CONCEPT OF ACADEMIC ABILITY SCALE

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SELF-CONCEPT OF ABILITY--GENERAL*
(FORM A)
Michigan State University
Bureau of Educational Research

Circle the letter in front of the statement which best answers each question.

1. How do you rate yourself in school ability compared with your close friends?

   a. I am the best
   b. I am above average
   c. I am average
   d. I am below average
   e. I am the poorest

2. How do you rate yourself in school ability compared with those in your class at school?

   a. I am among the best
   b. I am above average
   c. I am average
   d. I am below average
   e. I am among the poorest

3. Where do you think you would rank in your class in high school?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

4. Do you think you have the ability to complete college?

   a. yes, definitely
   b. yes, probably
   c. not sure either way
   d. probably not
   e. no

5. Where do you think you would rank in your class in college?

   a. among the best
   b. above average
   c. average
   d. below average
   e. among the poorest

*Copyright, Bureau of Ed. Research
Michigan State University, 1962

6. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think it is that you could complete such advanced work?

   a. very likely
   b. somewhat likely
   c. not sure either way
   d. unlikely
   e. most unlikely

7. Forget for a moment how others grade your work. In your own opinion how good do you think your work is?

   a. my work is excellent
   b. my work is good
   c. my work is average
   d. my work is below average
   e. my work is much below average

8. What kind of grades do you think you are capable of getting?

   a. mostly A's
   b. mostly B's
   c. mostly C's
   d. mostly D's
   e. mostly E's

APPENDIX B

PERCEIVED EVALUATIONS OF STUDENT'S ACADEMIC ABILITY BY OTHERS SCALES

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1. Parents 341
2. Best Friend. 342
3. Teachers. 343

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Please answer the following questions as you think your PARENTS would answer them. If you are not living with your parents answer for the family with whom you are living.

Circle the letter in front of the statement that best answers each question.

1. How do you think your PARENTS would rate your school ability compared with other students your age?

   a. Among the best
   b. Above average
   c. Average
   d. Below average
   e. Among the poorest

2. Where do you think your PARENTS would say you would rank in your high school graduating class?

   a. Among the best
   b. Above average
   c. Average
   d. Below average
   e. Among the poorest

3. Do you think that your PARENTS would say you have the ability to complete college?

   a. Yes, definitely
   b. Yes, probably
   c. Not sure either way
   d. Probably not
   e. Definitely not

4. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think your PARENTS would say it is that you could complete such advanced work?

   a. Very likely
   b. Somewhat likely
   c. Not sure either way
   d. Somewhat unlikely
   e. Very unlikely

5. What kind of grades do you think your PARENTS would say you are capable of getting in general?

   a. Mostly A's
   b. Mostly B's
   c. Mostly C's
   d. Mostly D's
   e. Mostly E's

Go on to the next page

Think about your closest friend at school. Now answer the following questions as you think this FRIEND would answer them.

Circle the letter in front of the statement that best answers each question.

1. How do you think this FRIEND would rate your school ability compared with other students your age?

   a. Among the best
   b. Above average
   c. Average
   d. Below average
   e. Among the poorest

2. Where do you think this FRIEND would say you would rank in your high school graduating class?

   a. Among the best
   b. Above average
   c. Average
   d. Below average
   e. Among the poorest

3. Do you think that this FRIEND would say you have the ability to complete college?

   a. Yes, definitely
   b. Yes, probably
   c. Not sure either way
   d. Probably not
   e. Definitely not

4. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think this FRIEND would say it is that you could complete such advanced work?

   a. Very likely
   b. Somewhat likely
   c. Not sure either way
   d. Somewhat unlikely
   e. Very unlikely

5. What kind of grades do you think this FRIEND would say you are capable of getting in general?

   a. Mostly A's
   b. Mostly B's
   c. Mostly C's
   d. Mostly D's
   e. Mostly E's

Go on to the next page

Think about your favorite teacher--the one you like best; the one you feel is most concerned about your schoolwork. Now answer the following questions as you think this TEACHER would answer them.

Circle the letter in front of the statement which best answers each question.

1. How do you think this TEACHER would rate your school ability compared with other students your age?

   a. Among the best
   b. Above average
   c. Average
   d. Below average
   e. Among the poorest

2. Where do you think this TEACHER would say you would rank in your high school graduating class?

   a. Among the best
   b. Above average
   c. Average
   d. Below average
   e. Among the poorest

3. Do you think that this TEACHER would say you have the ability to complete college?

   a. Yes, definitely
   b. Yes, probably
   c. Not sure either way
   d. Probably not
   e. Definitely not

4. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think this TEACHER would say it is that you could complete such advanced work?

   a. Very likely
   b. Somewhat likely
   c. Not sure either way
   d. Somewhat unlikely
   e. Very unlikely

5. What kind of grades do you think this TEACHER would say you are capable of getting in general?

   a. Mostly A's
   b. Mostly B's
   c. Mostly C's
   d. Mostly D's
   e. Mostly E's

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APPENDIX C

QUESTIONNAIRES TO IDENTIFY SIGNIFICANT OTHERS

Section Page

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2. Academic Significant Others . . 348

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GENERAL SIGNIFICANT OTHERS QUESTION

There are many people who are important in our lives. In the space below, list the Names of the people who you feel are important in YOUR life. Please indicate who each person is.

NAMES	WHO IS THIS PERSON?

If you finish before the time limit, please sit quietly. Do not turn the page.

ACADEMIC SIGNIFICANT OTHERS QUESTION

There are many people who are concerned about how well young people do in school. In the space below, list the NAMES of the people you feel are concerned about how well you do in school. Please indicate who each person is.

NAMES	WHO IS THIS PERSON?

If you finish before the time limit, please sit quietly. Do not turn the page.

APPENDIX D

SUPPLEMENTARY TABLES

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2. Means, Standard Deviations, Skewness, and Kurtosis for General Self-Concept of Academic Ability 352

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6. Means, Standard Deviations, Skewness, and Kurtosis of Grade Point Average 354

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TABLE 1
N'S FOR THE MAJOR VARIABLES

VARIABLE	GRADE	MALE	FEMALE
General Self-Concept of Academic Ability	7	254	307
	8	255	307
	9	255	307
	10	255	307
	11	255	307
	12	255	307
Grade Point Average	7	188	241
	8	254	306
	9	254	307
	10	255	307
	11	255	307
	12	255	307
Perceived Parental Evaluations	8	255	307
	9	255	307
	10	255	307
	11	255	307
	12	255	307
Perceived Friend's Evaluation	8	255	305
	9	255	307
	10	255	307
	11	255	307
	12	255	307
Perceived Teacher Evaluation	8	255	307
	9	255	307
	10	255	307
	11	255	307
	12	255	307
SES	8	255	307
	9	255	307
	10	255	307
	11	253	307
	12	253	307
IQ	Average of 4th & 6th	252	306
	9	188	233
	11	149	176

The N for a particular correlation coefficient is the lower of the two N's for the variables being correlated.

TABLE 2
MEANS, STANDARD DEVIATIONS, SKEWNESS, AND KURTOSIS FOR GENERAL SELF-CONCEPT OF ACADEMIC ABILITY: LONGITUDINAL* AND CROSS-SECTIONAL MALES AND FEMALES

Grade Level	Statistic							
	$\bar{X}$		SD		SK		KU	
	Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.
7 M	28.75	27.35	4.06		-0.08		0.69	
F	28.88	28.25	3.70		-0.06		0.68	
8 M	29.62	27.89	4.37	4.96	-0.36	-0.21	0.67	-0.02
F	28.72	27.85	4.33	4.36	-1.31	-0.21	6.82	0.01
9 M	29.74	27.79	4.51	5.01	-0.84	-0.29	2.14	-0.22
F	29.01	27.89	3.86	4.29	-0.11	-0.13	0.11	-0.11
10 M	29.40	27.69	4.41	4.96	-0.54	-0.22	1.86	0.21
F	28.43	27.50	3.80	4.24	-0.09	-0.09	0.07	0.17
11 M	28.98	28.58	4.76	4.75	-0.73	-0.15	2.11	-0.26
F	28.05	27.66	3.75	4.02	-0.01	0.15	0.02	-0.14
12 M	28.86	28.12	4.77	4.91	-0.31	-0.34	0.62	0.43
F	28.24	27.95	4.34	4.35	-0.52	-0.30	1.06	0.41

*Based on Longitudinal Population: 254-255 Males and 305-307 Females

TABLE 3
MEANS, STANDARD DEVIATIONS, SKEWNESS, AND KURTOSIS OF PERCEIVED PARENTAL EVALUATIONS: LONGITUDINAL* AND CROSS-SECTIONAL MALES AND FEMALES

Grade Level#	Statistic							
	X		SD		SK		KU	
	Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.
8 M	19.97	19.01	3.52	3.74	-1.34	-0.46	4.47	0.08
F	19.26	18.76	3.47	3.46	-1.11	-0.19	4.80	-0.40
9 M	20.35	19.03	3.29	3.69	-0.81	-0.32	0.80	-0.47
F	19.63	18.84	3.16	3.54	-0.23	-0.25	-0.46	-0.37
10 M	19.89	18.78	3.29	3.74	-0.53	-0.42	-0.08	-0.02
F	19.45	18.75	3.50	3.57	-0.85	-0.25	2.37	-0.47
11 M	19.80	19.64	3.47	3.47	-0.54	-0.37	-0.19	-0.26
F	19.27	19.00	3.30	3.53	-0.19	-0.18	-0.61	-0.80
12 M	19.71	19.21	3.79	3.74	-0.59	-0.93	3.69	2.16
F	19.32	19.22	3.36	3.47	-0.30	-0.38	0.40	-0.25

#Perceived evaluation data were not obtained in 7th grade.
*Based on a longitudinal population of 255 Males and 307 Females.

TABLE 4
MEANS, STANDARD DEVIATIONS, SKEWNESS, AND KURTOSIS OF PERCEIVED FRIEND EVALUATIONS: LONGITUDINAL* AND CROSS-SECTIONAL MALES AND FEMALES

Grade Level#		Statistic							
		X		SD		SK		KU	
		Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.
8	M	18.61	18.29	4.22	3.46	-2.07	-0.25	7.12	0.06
	F	18.91	18.64	3.44	3.17	-1.61	-0.09	7.42	-0.34
9	M	18.67	17.88	3.78	3.47	-1.53	-0.25	5.59	0.15
	F	18.98	18.53	3.14	3.11	-1.41	-0.26	7.43	1.09
10	M	.8.66	18.00	3.68	3.41	-1.32	-0.02	5.00	-0.21
	F	18.47	18.27	3.08	3.04	-0.78	0.01	2.57	-0.33
11	M	18.73	18.52	3.56	3.31	-0.90	-0.07	2.74	-0.44
	F	18.47	18.27	2.90	3.05	0.08	0.13	-0.18	-0.42
12	M	18.45	18.09	3.91	3.87	-1.36	-1.08	4.79	4.12
	F	18.73	18.53	3.11	3.11	-0.09	-0.01	-0.21	-0.24

#Perceived evaluation data were not obtained in the 7th grade.
*Based on a longitudinal population of 255 Males and 274-307 Females.

TABLE 5
MEANS, STANDARD DEVIATIONS, SKEWNESS, AND KURTOSIS OF PERCEIVED TEACHER EVALUATIONS: LONGITUDINAL* AND CROSS-SECTIONAL MALES AND FEMALES

Grade Level#		Statistic							
		X		SD		SK		KU	
		Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.
8	M	19.28	18.93	4.64	3.61	-2.23	-0.38	7.10	-0.10
	F	19.17	18.74	3.61	3.28	-1.40	-0.05	6.34	-0.29
9	M	19.37	18.73	4.49	3.53	-2.22	-0.32	7.34	0.02
	F	19.34	18.62	3.73	3.73	-2.14	-1.42	9.62	5.82
10	M	19.22	18.21	3.73	3.62	-1.53	-0.22	5.57	0.24
	F	19.01	18.55	3.30	3.17	-1.37	-1.10	5.01	-0.32
11	M	18.80	18.97	4.52	3.38	-1.85	-0.19	5.50	-0.36
	F	18.56	18.65	3.91	3.24	-1.76	-0.10	6.50	-0.57
12	M	18.59	18.28	4.09	3.87	-1.63	-1.28	5.61	-4.65
	F	18.70	18.76	3.76	3.54	-1.74	-1.25	6.55	4.56

#Perceived evaluation data were not obtained in the 7th grade.
*Based on a longitudinal population of 255 Males and 307 Females.

TABLE 6

MEANS, STANDARD DEVIATIONS, SKEWNESS, AND KURTOSIS OF GRADE POINT AVERAGE: LONGITUDINAL* AND CROSS-SECTIONAL MALES AND FEMALES

Grade Level	Statistic							
	X		SD		SK		KU	
	Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.	Long.	X-Sec.
7 M	2.51	2.07	.72		-0.07		-0.46	
F	2.78	2.43	.78		-0.22		-0.74	
8 M	2.57	2.13	.77	.89	-0.46	-0.49	-0.44	-0.84
F	2.77	2.37	.75	.91	-0.25	-0.31	-0.48	-0.75
9 M	2.47	2.06	.74	.81	-0.00	0.37	-0.48	-0.90
F	2.73	2.42	.72	.79	-0.04	0.10	-0.77	-0.66
10 M	2.25	1.89	.68	.81	-0.06	0.18	-0.42	-0.44
F	2.52	2.29	.69	.79	0.10	-0.01	-0.43	-0.40
11 M	2.25	2.13	.72	.79	0.09	0.35	-0.35	-0.41
F	2.46	2.33	.80	.81	0.02	0.08	-0.76	-0.77
12 M	2.18	2.08	.74	.79	0.02	0.14	-0.08	-0.11
F	2.64	2.57	.80	.79	-0.25	-0.27	-0.26	-0.08

*Based on a longitudinal population of 188-255 Males and 241-307 Females

APPENDIX E

CORRELATION MATRICES

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2. Females 358
3. Combined Males and Females 359

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Variable by Grade Level

MALES

	Perc'd Parent Eval. 8 1	Perc'd Parent Eval. 9 2	Perc'd Parent Eval. 10 3	Perc'd Parent Eval. 11 4	Perc'd Parent Eval. 12 5	Perc'd Friend Eval. 8 6	Perc'd Friend Eval. 9 7	Perc'd Friend Eval. 10 8	Perc'd Friend Eval. 11 9	Perc'd Friend Eval. 12 10	Perc'd Teacher Eval. 8 11	Perc'd Teacher Eval. 9 12	Perc'd Teacher Eval. 10 13	Perc'd Teacher Eval. 11 14	Perc'd Teacher Eval. 12 15	Self-Concept Ability 8 16	Self-Concept Ability 9 17	Self-Concept Ability 10 18	Self-Concept Ability 11 19	Self-Concept Ability 12 20	Grade Point Average 8 21	Grade Point Average 9 22	Grade Point Average 10 23	Grade Point Average 11 24	Grade Point Average 12 25
1	-	62	54	52	55	45	56	43	46	41	46	50	47	41	46	64	54	45	48	44	47	46	35	26	22
2			69	70	68	36	63	60	48	50	44	44	63	50	48	65	73	60	60	53	61	56	45	45	33
3				75	61	36	52	59	52	46	33	44	63	52	46	57	58	70	62	53	53	55	51	40	32
4					76	27	70	54	63	57	36	47	56	65	59	58	62	62	69	64	58	58	55	53	38
5						23	47	51	57	69	38	41	52	53	62	59	58	53	63	69	53	49	48	47	35
6							61	40	30	22	46	31	41	24	29	36	35	43	24	22	32	35	30	18	16
7								58	49	45	55	57	57	47	50	53	58	50	42	38	48	46	38	33	27
8									63	57	48	41	72	54	57	49	54	66	56	50	48	46	47	39	33
9										66	53	40	57	68	61	54	55	55	70	64	47	46	47	46	43
10											45	45	52	64	72	54	53	44	62	71	44	47	44	45	39
11												40	48	45	43	50	43	36	42	41	42	35	29	23	24
12													46	44	45	51	55	42	42	40	41	51	36	29	18
13														58	50	49	52	69	60	47	47	46	45	39	30
14															61	50	52	55	65	57	46	46	51	47	39
15																46	46	44	57	64	46	48	48	48	45
16																	74	59	62	58	63	57	44	41	29
17																		68	66	62	65	62	52	45	33
18																			70	60	57	56	62	46	35
19																				76	61	56	60	61	46
20																					53	52	53	53	48
21																						73	66	63	58
22																							67	63	52
23																								65	52
24																									65
25																									-

Variable by Grade Level

FEMALES

	1 Perc'd Parent Eval. 8	2 Perc'd Parent Eval. 9	3 Perc'd Parent Eval. 10	4 Perc'd Parent Eval. 11	5 Perc'd Parent Eval. 12	6 Perc'd Friend Eval. 8	7 Perc'd Friend Eval. 9	8 Perc'd Friend Eval. 10	9 Perc'd Friend Eval. 11	10 Perc'd Friend Eval. 12	11 Perc'd Teacher Eval. 8	12 Perc'd Teacher Eval. 9	13 Perc'd Teacher Eval. 10	14 Perc'd Teacher Eval. 11	15 Perc'd Teacher Eval. 12	16 Self-Concept Ability 8	17 Self-Concept Ability 9	18 Self-Concept Ability 10	19 Self-Concept Ability 11	20 Self-Concept Ability 12	21 Grade Point Average 8	22 Grade Point Average 9	23 Grade Point Average 10	24 Grade Point Average 11	25 Grade Point Average 12
1	-	65	57	53	51	67	50	50	48	47	65	45	42	47	39	76	63	59	52	50	51	45	28	32	32
2			70	68	64	46	60	59	56	56	60	59	58	46	47	63	79	69	64	61	62	55	36	37	40
3				74	68	38	48	69	61	56	50	47	61	51	48	56	65	76	66	61	66	57	46	44	49
4					77	37	47	62	74	59	43	44	50	61	56	51	60	67	76	65	64	60	50	50	55
5						34	46	58	61	74	41	42	46	58	60	48	56	65	70	76	60	57	53	51	58
6							40	37	40	35	58	39	31	39	25	65	49	44	37	36	32	26	15	13	20
7								59	54	51	45	64	47	35	37	55	66	58	48	48	47	46	31	30	32
8									65	58	45	49	55	47	50	50	57	70	61	57	55	54	44	38	43
9										69	39	44	49	59	51	48	56	69	75	67	60	58	54	49	49
10											44	41	47	45	62	46	55	61	67	76	54	56	48	52	54
11												51	44	29	28	70	58	53	43	44	42	37	22	22	22
12													45	33	34	47	63	50	45	39	40	38	21	23	29
13														56	53	49	61	63	54	50	50	51	41	37	41
14															60	43	48	51	57	50	48	49	45	44	46
15																35	44	47	57	63	52	51	49	54	56
16																	71	64	56	53	52	47	28	29	35
17																		75	68	62	61	55	34	34	42
18																			75	70	62	60	53	41	49
19																				77	66	64	54	59	56
20																					58	59	50	52	58
21																						77	60	65	64
22																							67	70	65
23																								70	65
24																									69
25																									-

Variable by Grade Level

	1 Perc'd Parent Eval. 8	2 Perc'd Parent Eval. 9	3 Perc'd Parent Eval. 10	4 Perc'd Parent Eval. 11	5 Perc'd Parent Eval. 12	6 Perc'd Friend Eval. 8	7 Perc'd Friend Eval. 9	8 Perc'd Friend Eval. 10	9 Perc'd Friend Eval. 11	10 Perc'd Friend Eval. 12	11 Perc'd Teacher Eval. 8	12 Perc'd Teacher Eval. 9	13 Perc'd Teacher Eval. 10	14 Perc'd Teacher Eval. 11	15 Perc'd Teacher Eval. 12	16 Self-Concept Ability 8	17 Self-Concept Ability 9	18 Self-Concept Ability 10	19 Self-Concept Ability 11	20 Self-Concept Ability 12	21 Grade Point Average 8	22 Grade Point Average	23 Grade Point Average 10	24 Grade Point Average 11	25 Grade Point Average 12
1	-	64	56	53	52	54	52	46	47	41	55	47	44	44	42	71	59	53	50	44	47	43	28	28	24
2			70	69	65	39	61	59	52	48	51	56	60	48	47	64	76	65	62	52	59	52	37	28	19
3				75	64	36	49	63	56	48	41	45	62	51	47	56	62	73	64	53	59	54	46	41	38
4					76	31	49	58	68	55	39	45	53	63	57	55	61	65	72	59	59	56	50	49	41
5						27	45	53	60	59	38	41	48	55	61	54	56	58	66	73	54	50	48	47	40
6							52	39	34	28	51	35	36	31	27	50	41	43	29	28	32	30	23	16	19
7								59	51	46	51	60	52	41	44	53	61	52	44	40	48	46	35	31	30
8									64	54	47	44	64	51	54	49	55	68	58	49	51	49	45	38	36
9										63	47	42	53	64	60	51	55	62	72	59	52	50	49	46	43
10											43	41	46	51	67	49	51	50	59	77	45	48	42	44	46
11												44	46	38	36	59	50	44	43	41	41	35	25	22	22
12													45	38	41	49	59	46	43	36	40	44	28	25	22
13														57	51	49	56	66	57	44	47	47	41	37	33
14															60	46	51	57	61	47	46	46	46	44	39
15																34	45	45	56	63	49	49	48	51	49
16																	72	62	59	56	55	49	33	32	28
17																		71	67	58	61	56	40	37	33
18																			73	58	57	55	53	41	37
19																				69	61	57	54	57	44
20																					49	48	44	45	49
21																						76	64	65	62
22																							68	67	61
23																								68	61
24																									67
25																									-

MALES - FEMALES
COMBINED

PRECEEDING PAGE BLANK NOT FILMED

APPENDIX F

SELF-CONCEPT OF TEACHING ABILITY

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APPENDIX F

SELF-CONCEPT OF TEACHING ABILITY*

1. How would you rate yourself in teaching ability compared with secondary teachers in general?

    1. outstanding
    2. among the best
    3. good
    4. above average
    5. average
    6. below average
    7. among the poorest

2. Where would you rank your ability to become a teacher on closed circuit television?

    1. outstanding
    2. among the best
    3. good
    4. above average
    5. average
    6. below average
    7. among the poorest

3. Where would you rank your ability to be a supervising teacher for a student teacher?

    1. outstanding
    2. among the best
    3. good
    4. above average
    5. average
    6. below average
    7. among the poorest

4. How would you rate your ability to get along with students compared with teachers in general?

    1. outstanding
    2. among the best
    3. good
    4. above average
    5. average
    6. below average
    7. among the poorest

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*This title did not appear on the questionnaires.

5. How would you rate your ability to enrich instruction (go beyond the book) compared with teachers in general?

   1. outstanding
   2. among the best
   3. good
   4. above average
   5. average
   6. below average
   7. among the poorest

6. Where would you rank your methods of teaching compared with other secondary teachers?

   1. outstanding
   2. among the best
   3. good
   4. above average
   5. average
   6. below average
   7. among the poorest

7. How would you rate yourself in teaching ability compared with other teachers who have the same number of years of teaching experience?

   1. outstanding
   2. among the best
   3. good
   4. above average
   5. average
   6. below average
   7. among the poorest

8. Where would you rank your methods of classroom discipline compared with other secondary teachers?

   1. outstanding
   2. among the best
   3. good
   4. above average
   5. average
   6. below average
   7. among the poorest

9. How would you rate yourself in ability to teach your major subject compared with other teachers of that subject?

    1. outstanding
    2. among the best
    3. good
    4. above average
    5. average
    6. below average
    7. among the poorest

10. Where would you rank your ability to teach an accelerated class?

    1. outstanding
    2. among the best
    3. good
    4. above average
    5. average
    6. below average
    7. among the poorest